ANCEMENT OF MANAGE

1952
RING
LIBRARY

Advanced Management

MODERN MANAGEMENT

CENTENNIAL OF ENGINEERING

IN THIS ISSUE

- Industrial Engineering
- A Century of Engineering
- Human Relations
- Management Development
- Time Study

NOVEMBER 1952

Remington Rand Methods News

The case of the punch press that was not popular

When a well-known manufacturer switched to Remington Rand punched-card costing, the new detailed reports revealed surprising doings in the shop.

For instance, one report indicated a certain type of punch press was the most efficient on a particular operation. But another report showed the press was not being used on this operation. Investigation revealed that workers preferred a different type of press which was easier to operate. Management now had all the facts needed for effective action.

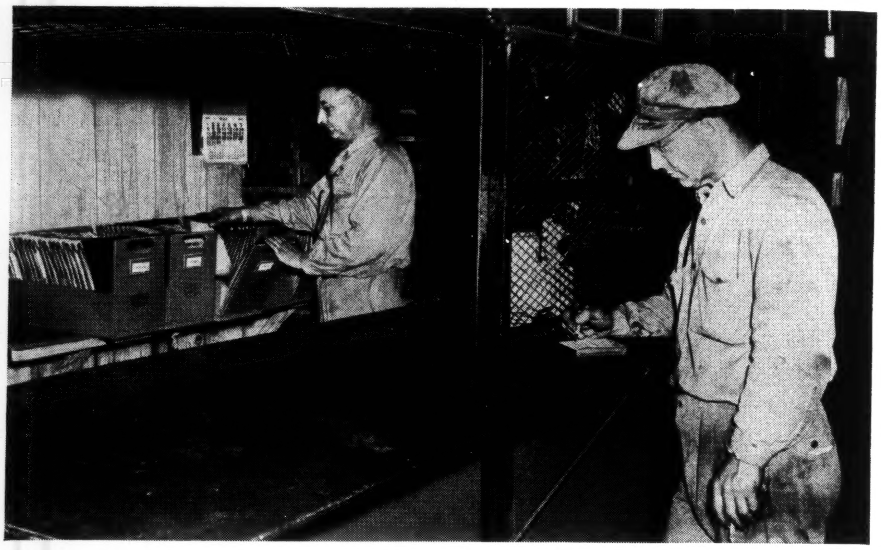
What's more, this new system put the finger on profit leaks much faster. Instead of waiting 30 days to get sketchy facts, management now gets complete cost reports 5 days after completion of a job.

Naturally, costing is just part of the punched-card accounting operation which helps the firm produce better products at lower cost with better service to customers. Let us show you how it also simplifies materials management, production control and payrolls. Ask for case history folder **SN-752.**

If you'd be interested in punched-card services to get the same informative records without setting up your own punched-card department: folder **BSD-6.**

Purchasing procedures
that save time and money

NEW MANUAL HELPS YOU SLASH PURCHASING PAPERWORK COSTS—Here are 20 pages of practical ideas to save time in the purchasing department; to give buyers complete information for sound purchasing decisions. Case histories show you how others profit by using the illustrated forms, methods and procedures. Covers every phase of paperwork from receipt of requisition to closing of order file. Ask for manual X-1202.



TOOL CRIB UNDER CONTROL. Say goodbye to your old-fashioned tool check-out methods. This simple *visible* method will double-check itself to prevent errors in charging out tools . . . enable each tool center to keep its own records accurately, easily . . . give you tool inventory control as a by-product. Get details from folder KD-641.

How a plant doubled its turnover rate on parts and materials

Within six months after putting in a new materials control program, this plant reduced its parts inventory by a million dollars—and doubled its turnover rate—yet maintained a better cushion against shortages than before.

Because delivery schedules for incoming materials were tied in closely with production schedules, the plant also eliminated unnecessary handling of material and warehousing.

Heart of this system was a Kardex materials control record giving fast *visual* analysis of status of each individual item. Without referring to ledger entries, the clerk could spot any item which threatened to slow production.

Yet, for detailed analysis, this type of record also furnishes a complete and convenient history of each item, including purchases, usage and projected requirements for coming months.

Whether you have 500 or 50,000 parts, you will find this flexible method is invaluable for maintaining the proper balance between the cost of acquiring an item and the cost of possessing it. If you have punched-card production records, this method provides a positive supplement to your control system. For details, see our methods file **MC-767,** available on loan for your study.

QUICK RELIEF FOR COMMON HEADACHE IN PRODUCTION

A small part can cause a big headache—when it's the wrong part. Poor description of parts causes all kinds of trouble: production delays, duplicate stocks and high paperwork costs. But the cure is simple. Identify and classify each item properly, so it can be referred to by exact number. The cost is less than you may think. Our engineers have built up a special library of standard nomenclature and numbering systems which can be readily adapted to your parts and materials. For more details, see our booklet **BSD-10.**

Remington Rand INC.

Management Controls Reference Library
Room 1479, 315 Fourth Ave., New York 10

Please circle the literature you desire:

SN-752	BSD-6	X-1202
KD-641	MC-767	BSD-10

Name____________________

Title____________________

Firm____________________

Address____________________

City____________________

Zone______State______________

Volume XVII Number 11

November, 1952

Editor-in-Chief — C. A. Slocum

Editor — Edward Schulz

Editorial Assistants:
Mary E. Cawthon
Adele S. Rocker

Advanced Management

PUBLICATIONS COMMITTEE

James J. Bambrick, Jr., *Labor Relations Specialist, National Industrial Conference Board, 247 Park Avenue, New York, N. Y.*

Mrs. Wallace Clark, *2 Fifth Avenue, New York, N. Y.*

Don F. Copell, *Vice President, Engineering and Personnel Training, Wagner Baking Corporation, Newark, N. J.*

Frank Fehlman, *110 E. 42nd Street, New York, N. Y.*

L. C. Morrow, *Consulting Editor, Factory Management and Maintenance, New York, N. Y.*

Al N. Seares, *Vice President, Remington Rand, Inc., New York, N. Y.*

Ordway Tead, *Editor of Social and Economic Books, Harper & Brothers, New York, N. Y.*

Consultant to the Committee — Robert I. Miller, *Assistant Secretary, The Curtis Publishing Company, Philadelphia, Pa.*

NATIONAL OFFICERS: 1952-53

President — Edward W. Jochim, *General Manager, Chicago Plant and Member of the Board of Directors, Personal Products Corporation, Chicago, Ill.*

Executive Vice President — Bruce Payne, *President of Bruce Payne & Associates, Inc., Westport, Conn.*

Secretary — J. O. P. Hummel, *Consultant, Productivity and Technical Assistance Division, Mutual Security Agency, Washington, D. C.*

Treasurer — Harold Engstrom, *Manager, Industrial Engineering Division, Sylvania Electric Products, New York.*

Director-at-Large — Leon J. Dunn, *Assistant to the Executive Vice President, Veeder-Root, Inc., Hartford, Conn.*

Executive Director — C. A. Slocum

Vice President, Management Research and Development — Harold F. Smiddy, *Vice President, Management Consultant Services Division, General Electric Company, New York.*

Vice President, Student Chapter Operations and Development — Ralph L. Jacobs. *Management Consultant, Cincinnati, Ohio.*

Vice President, Chapter Operations — James E. Newsome, *Superintendent, Johnson & Johnson, Chicago, Ill.*

Vice President, Membership—Don F. Copell, *Vice President, Engineering and Personnel Training, Wagner Baking Corporation, Newark, N. J.*

Vice President, North Central Region — Charles E. Durham, *Administrative Engineer, McDonnell Aircraft Corporation, St. Louis, Mo.*

Vice President, Southeastern Region—Rhett Ball, *Vice President, Bruce Payne & Associates, Inc., Atlanta, Ga.*

IN THIS ISSUE . . .

Continuous Significant Progress in Management Is Necessary Too! 4
by Edward W. Jochim, President, SAM, 1952-1953

Human Aspects of Industrial Engineering 5
by Ralph Presgrave

A Century of Progress 9
by Joseph W. Towle

Employee Dynamics and Engineering Technology 11
by Roger M. Bellows

SAM Annual Fall Conference 17

Building Executives for the Future 18
by Louis A. Allen

Time Study Research 22
by Dr. Ir. C. L. M. Kerkhoven

November Chapter Meetings 26

December Chapter Activities 27

NMC International News 28

Building Our Membership 29
by Don F. Copell, Vice President of Membership

DISCLAIMER: Every effort is made to verify the information published in Advanced Management. The opinions of the authors, however, are not necessarily the opinions of the Society and this periodical accepts no responsibility in connection with any liability which might develop as a result of articles published. All unsolicited articles, manuscripts, letters, and pictures sent to Advanced Management are sent at the owner's risk, and Advanced Management expressly repudiates any liability or responsibility for their safe custody or return.

ADVANCED MANAGEMENT, published monthly by Society for Advancement of Management, 411 Fifth Avenue, New York 16, N. Y., is merged with MODERN MANAGEMENT, and is successor to The Society for the Advancement of Management Journal, the Bulletin of the Taylor Society and of The Society of Industrial Engineers. Re-entered as second-class matter, December 23, 1949, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1952, Society for Advancement of Management. Subscription rate: $8.00 per year. Single copies: 75 cents (members); $1.00 (non-members). An index to ADVANCED MANAGEMENT is published annually, and the contents are also indexed in *Industrial Arts Index* which is available at Public Libraries. Notification of address changes must be given four weeks in advance.

Continuous Significant Progress In Management Is Necessary Too!

Edward W. Jochim

By EDWARD W. JOCHIM
President, SAM, 1952-1953

THE CENTENNIAL OF ENGINEERING celebration in Chicago last September was a fitting and proper recognition of a milestone in our progress.

All who had any part in this great event, those who conceived the idea, those who managed it, and those who presented the papers are to be congratulated and thanked. Those who attended were surely well rewarded directly for their participation. It is only fitting that we apply the same scientific analysis to the Centennial itself that the Centennial applied so effectively in both breadth and depth.

There were ample worth-while sessions in every technical area, and these sessions were well attended. However, management itself is now belatedly recognized as the most important single area in business, industry, government and institutions. It would hardly seem that this most important area was proportionately recognized in terms of comprehensive treatment or participation. To be very specific, the Calvin W. Rice lecture delivered by Colonel Lyndall F. Urwick, of London, England, was one of not more than a half dozen really important management papers of the year. It well merited an attendance that would have overflowed the largest hall available in place of merely comfortably filling the usual size hall.

As we are fortunate to have this complete paper reproduced in the December issue, quotations here are unnecessary. It is worthy of serious note here that Colonel Urwick deemed it necessary, however tactfully, to express concern lest there be any diminution of interest, enthusiasm or leadership in the Management Movement. Concern about diminution where there should be ever increasing interest, enthusiasm and leadership!

These three points, disproportionately small programming of management papers, relatively poor attendance at management sessions, and concern about a diminution of interest in the development of management, certainly indicate that we are still, to a degree, only giving "lip service" to the necessary forward development of the art and science of management.

Any member of management who analyzes the great number of announcements of meetings, conferences, round tables, short courses, refresher courses, and so on, must inescapably be plagued by two questions which demand answers.

Is a paper or discussion of any subject complete without adequate coverage of the management aspects of the area under discussion? Certainly it could not be because the management aspects of any subject are the most difficult aspects of that subject—that is the very reason for the necessity of including it in every paper, in every discussion.

Is there not some way to improve the quality of many of these papers and discussions, even at the expense of reducing the quantity of them? Each of our worth-while societies or associations for professional management or specialized areas of management were founded to fill a definite need that was not otherwise being adequately filled. As our various societies and associations have grown, there has been an almost inevitable overlapping of some coverage, sometimes locally, sometimes nationally. Agreed that in non-profit organizations, like in organizations for profit, a certain amount of competition is healthy. Is it not equally true that over-competition among non-profit organizations causes a weakening of forward movement toward our worth-while objectives? The evidence to date shows that where overlapping is limited in extent or geographical area, much is gained by carrying on such activities jointly. For example, the Management Division of the American Society of Mechanical Engineers has joined with us in sponsoring our Annual Spring Time and Motion Study Conference in New York City. These conferences have been outstandingly successful. They enjoy the highest attendance of any conferences of this type. The Proceedings of these conferences are looked forward to as a valuable contribution to this specialized area of management. This joint sponsorship, far from in any way hurting either or both sponsoring societies, reflects great credit for worth-while accomplishment on both societies. Many other cases of joint sponsorship with our Society and among other societies have enjoyed similar good results. The great multiplicity of programs indicates that there is considerable opportunity for more joint sponsorship of programs as a means to further worth-while objectives. ✪

Human Aspects Of Industrial Engineering

By RALPH PRESGRAVE

A penetrating analysis of the industrial engineering function and its broader aspects.

IN MAKING WHAT I am afraid are some rather obvious remarks, may I say their sole justification and my slender hope is that I might bring a better perspective to a highly complex situation that, due to its emotional connotations, is rarely viewed with detachment. Because of this, I do not propose to discuss in any detail the topic of "human relations" which has come to have a special meaning in the jargon of industry but relates no more to Industrial Engineering than it does to selling or a dozen other facets of business. It was a problem long before Industrial Engineering came into existence. This exclusion barely narrows the field of our discussion which permits numerous points of view mainly because when Industrial Engineering is mentioned one can never be sure whether the reference is to the engineer himself, his rank, his actual function, or his place in the economic scheme of things.

It is this that makes it impossible to give a definition that meets all requirements, and you will have to deduce what the term means to me from my subsequent remarks. However, there is one definition that seems to satisfy many people—"The Industrial Engineer is a person who charges you more for telling you how to run your business than you could possibly make if you ran it the right way instead of the way he tells you." This reflects but one of the emotional connotations and refers to people like myself who are in the consulting field and are in the anomalous position of having professional responsibility without professional status.

For some years, I have served inadequately on two committees. One is working towards professionalizing the Industrial Engineer and the other is compiling a glossary of Industrial Engineering terms. Both are faced with settling on a definitive description of the subject, and, as yet, both are stalled between the general, which is useless when one contemplates licensing, and the specific which can never be specific enough to embrace all the growing and changing arts and sciences that are drawn into the field or, in the vernacular, "try to get into the act."

Actually, the nebulous impression thus created is superficial, for there is a common denominator which is at the heart of the Industrial Engineering function. I refer to the matter of time. The basic purpose, the ultimate justification, of Industrial Engineering is that of saving time. This saving of time is the essential ingredient, not only in the technical problems that are solved but also in the human problems that are created (and also solved).

Before trying to develop this theme, I should like to bracket it after a fashion by two references. The first and, by far, the more significant is an article in "Business Week," June 28, 1952. It deals with the astounding results and implications of farm mechanization. In the span of a generation, over 2,000,000 men have been dropped from farm employment, and, yet, with almost no increase in tilled acreage, our gross farm output has increased by 40% and our output per worker by 60%. Since 1920, the output per man-hour has doubled.

I have purposely chosen this example from outside of industry—the area usually regarded as the bailiwick of the Industrial Engineer because the principles he personifies are exemplified as well on the farm as in the factory, and are supported by many who in no way regard themselves as Industrial Engineers. While it is true that much of the farm revolution has come from mechanization and hence from the engineer and the inventor, one cannot exclude the contribution made by biologists, pathologists, chemists, botanists and such. A moment's thought reveals that all have concentrated, whether or not they realized it, on the same focal point—the saving of time, which really means the freeing of time to be devoted to greater output of food, of factory-made goods and of services. In a sense, a miracle is performed —time is created.

We are concerned today with the human aspects of Industrial Engineering, the Industrial Engineers more than any other group being obsessed with the significance of time as an economic and consequently a human factor. It takes little imagination to visualize some of the human aspects of the situation I have just outlined. Millions of people are now living totally different lives than they would have led a few years ago, when alarm was expressed over the exodus of young people to the cities, and when the politicians and others were prophesying that we should soon starve to death. In the boyhood days of many here, "back to the land" was an urgent slogan.

In those days, we gave little thought to the vital principle that underlies this continent's economy. Nor do we always see it as clearly as we should today. For instance, my other reference, trivial indeed, but not to be ignored, is a poll run a few years ago by one of our business magazines. It dealt with the likes and dislikes of factory workers and revealed that the two major dislikes were Japs and Nazis followed closely by a third—Industrial Engineers.

Well, we have grown a little dubious about polls since then and we seem also to have changed our minds about our one-time enemies. Maybe the same goes for the Industrial Engineer. Nevertheless, some of these earlier antipathies continue to hold a position even though jokingly expressed and over-ridden in practice.

For instance, when I mentioned to some of my friends that I was to talk about the human aspects of Industrial Engineering, they affected great amusement. They suggested that it was something like Judas Iscariot expounding the virtues of betrayal; that I must surely be suffering from a misprint and that "inhuman" was no doubt the word. As they warmed up to the topic they talked of the speed-up, the stretch-out and being too old at 40, and generally strived to give the impression that the Industrial Engineer is a unique combination of Simon Legree and Mortimer Snerd—as stupid as he is vicious. They even brought up the chestnut about Henry Ford and the broom.

Since they were themselves disciples of Scientific Management they were not serious, but were embroidering the all-too-common popular concept of the worker at odds with the time study man —the ordinary Joe and the expert.

Obviously, this is a gross over-simplification of a complex subject in which the time study man is only a small factor. For instance, in the case of the man whose immediate job has disappeared because a new method has been devised by the time study man, was the time study man really the cause of the man's trouble? Or, was it the employer of the time study man? Was it a competitor of the employer, or was it the union stimulating time-saving by its demands? Was it the ebb and flow of international affairs or the vagaries of consumer preferences? While pondering these things, we must also realize that although the popular view of Industrial Engineering tends to dwell on this narrow phase, nevertheless it is at this phase that Industrial Engineering methods are put to the test and at which it has sometimes stumbled and failed to reach its wider purpose. Failures have arisen because of the ineptitude of engineers and their employers in coordinating technical procedures with the intricacies of human relationships.

Naturally we hear more about the failures. Even so, although in some places the function of the Industrial Engineer is still viewed askance and the man himself may not be entirely persona grata, the baiting of the efficiency expert is becoming anachronistic as understanding grows. For evidence of this understanding we have only to look at the remarkable way in which our universities, once chary, have vied in establishing departments of Industrial Engineering; at the serious approach to professionalization; at the growing attendance at meetings such as this; and not least at the fact that Trade Unions, once bitterly opposed to Scientific Management, in many cases maintain Industrial Engineering staffs of their own and operate schools for time study stewards and others.

Ralph Presgrave

HIGHLIGHTS ON THE AUTHOR

This paper was presented at the Western Hemisphere Management Conference on September 9, 1952, at Chicago, Ill. It was one of the outstanding presentations, not only at this conference, but during the Centennial of Engineering held in Chicago during September.

In 1951, SAM awarded Mr. Presgrave the Gilbreth Medal for his outstanding contribution to the advancement of Industrial Engineering. He has spoken before SAM, ASME and other professional organizations, as well as serving on SAM and ASME Committees, and he is author of ***Dynamics of Time Study.*** At the present time, he is Vice-President of York Knitting Mills, Ltd., and is also associated with J. D. Woods & Gordon, Limited, Toronto, Canada. The paper is being reproduced through the courtesy of ASME.

That their objectivity in the matter leaves something to be desired is neither surprising nor overly regrettable. At least there is an implied admission of the principle involved and the fact that they use their knowledge to criticize management techniques may well lead to improvement in those techniques. It should be remembered that unions are by their nature essentially political bodies whose leaders must always have a mind for their constituents, and who are by necessity often forced to take the short view rather than the long view—a dilemma faced by all who angle for the support of constituents.

We noted that the Industrial Engineer is preoccupied in the saving of time, a procedure to which many other trades and professions are devoted. Actually the matter goes a little deeper than this technical essence. For in applying the scientific approach to business and industry, Industrial Engineering proves to be more than a conglomeration of techniques but is essentially a point of view, a frame of mind, a philosophy. The nature of the philosophy is too familiar to this audience to need elaboration — you are all dedicated to it. It is the vitalizing element in Western culture, the basis of the economic principle to which North America at least is so deeply, and, I hope, irrevocably committed. It is sometimes condemned as being a low, materialistic notion. I suggest that this "sour grapes" point of view is superficial. It may be true that the materialistic aspect, being highly demonstrable, is overplayed at times but the thoughtful person sees more in the principle than the mere extension of worldly satisfactions. It bears directly on the age-old problems of health, poverty, feudalism, illiteracy, and personal freedom.

While the principle may always have been vaguely understood, it received its first real impetus from the Industrial Revolution in England nearly two centuries ago and has been gathering momentum ever since. At the outset, it was founded on the invention of machines. Later came the development of steam and electric power, and, still later, the techniques of Scientific Management. What is yet to come in this apparently geometric progression defies the imagination.

At each stage, many arts and sciences take part and I see no reason to differentiate strongly among them. They all work to the same end as the Industrial Engineer — towards the elimination of drudgery. They are all inextricably involved in man's constant striving to subjugate nature to his needs and desires. In this he also strives to achieve a given end with constantly diminishing human time and effort so that he can use the residual time and effort in further conquests and further satisfactions.

There are those who find the whole idea repulsive. Some rail against it, some try to run away from it, but that they can hope to escape either the good or bad is unlikely for any but the most daring or unconventional. At least they have a legitimate point of view, with which one can sympathize. In some measure they temper the grossness of materialism.

There are others, however, with whom one has little sympathy. They work to frustrate the operation of the principle even though they are most eager to take advantage of it. I refer to those who condone or take part in the vicious and immoral practice known as "featherbedding." Fortunately, they too are a small minority and if there is an extenuating element it is that of the universal belief of the individual that he can be an exception to economic laws — as indeed he sometimes can. Actually, of course, the vast majority subscribes to the principle we have mentioned, and almost every one contributes, unwittingly or not, according to his talents, opportunities and beliefs.

Here then is the major human aspect of Industrial Engineering, for the Industrial Engineer is committed to the improvement of the economic status of the nation by following the simple rule that the less time it takes to make it the more people can have it. In this general respect, as we have noted, he is no different from the inventor of gadgets, the physician who prolongs useful life, or the geneticist who develops a new hybrid. However, when we consider his more specific functions, other more pointed and less sweeping human aspects develop. Some of these conflict with others, and observers have professed to see an inconsistency in that the Industrial Engineer may take away with one hand and give back with the other.

It is a fact that the time-gains and higher productivity from motion study, time study and incentives do permit shorter work weeks and do help provide pensions and medical services; but I doubt if many engineers regard these as charities to be paid for by stringencies elsewhere. More likely they will regard them as all part of the same piece and designed to promote long-term efficiency.

They do, however, point up another human aspect. Consonant with the operation of Industrial Engineering, it is becoming more and more the thing to regard with concern and without ulterior motives, the health and welfare of employees. In recognition of this, governments, employers and trade unions, all in greater or lesser degree, tend to employ various procedures designed to distribute money more evenly in order to alleviate distress. Opinions to the contrary, the individual is looked after better than ever before and, reverting to "human relations," is the object of more concern than ever before.

I wish to make it clear that this is not the birth of a new humanitarianism. We may be certain the impulse always existed, and if it was not always expressed concretely the reason should be clear. In order to fulfill one's charitable instincts, one must have the means — the money and the time. The principle that directs the Industrial Engineer has provided the money and the time.

So far I have dealt in generalities and have not distinguished between the Industrial Engineer and other engineers and professional men. However, there are distinctions, as the Industrial Engineer so frequently realizes when he is thrown directly and constantly into an entirely different area of human relations, not the general economic picture which almost any one can view with detachment, but the specific personal area we mentioned earlier where individuals must deal with individuals. These are the human aspects at the near point and short term level, or we might say at the tactical rather than the strategic level. This is the area in which the results of technology must be reconciled (or not as the case may be) with the strictly personal and immediate problems of food, housing and clothing.

This I suppose is the phase of the subject which our title brings to mind. It is exemplified by the situation mentioned earlier in which the time study man sets a standard requiring fewer people on a given job, requiring an operator to produce more, to work harder or more consistently, or perhaps to suffer a loss in earnings. In such cases, feelings naturally run high. The operator will be greatly upset and will see no reason why he should be the victim of an economic law by which everyone else profits. Conflicts may arise, a strike may develop. Certainly many questions are raised and many diverse interests are concerned with the final result. Consumers, politicians, union officers, shopkeepers and what not have their own special axes to grind.

It was precisely this human aspect of Industrial Engineering and its inept handling a generation ago that caused all the stir about the efficiency expert. When it results in the loss of someone's job it gets well out of focus, especially in the eyes of sentimental people.

The hullabaloo may so affect the engineer that he will forget that his primary function is technical and that it is his duty to submerge his sympathies and emotions and first and foremost be an uncompromising technician. This applies no less to the time study man than to the inventor of labor-saving machinery. The time study man who fiddles his ratings and readings or otherwise laces his results with the milk of human kindness is a dishonest fool whose good intentions do him no credit. Moreover they defeat themselves. If we temporize with technology we may dodge an uncomfortable personal situation, but we will have created worse problems for the future, including the loss of our own integrity and our consequent uselessness in the technical field.

This does not mean that the technician must be dehumanized—far from it. His skill and ingenuity wil be needed to find ways of dealing with the problems that are in turn the by-products of his skill and ingenuity. In the case of job losses through technology, the problem will be settled in various ways according to the need of the employee, the personality of the management, the seniority of the employee, the financial status of the business, the competitive situation, the existence of job opportunities elsewhere, the pressure of the unions and so on. It is the problem that has engaged people more and more in recent years and one that has been relatively easy to solve in a period of expanding economy. You are as aware as I of the methods employed—delaying the implementation of the change until the normal turnover makes a job for the man, paying technological severance allowance, and so on. The state now takes a hand, also, by providing employment service and unemployment benefits.

I should also point out that even at the near-point there are positive human gains. People are more and more being directed to work for which their aptitudes and temperament are suited. They are more effectively and rapidly trained, they are more intelligently promoted, working conditions become increasingly more pleasant, all of which means higher earnings sooner, plus obvious psychological satisfactions. A further by-product is the short week, the extension of leisure and the opportunities it provides. That these opportunities are so often unused can hardly be laid at the door of the engineer.

These things demonstrate a growing understanding of the fact that the basic human aspect of industrial engineering is that of all technology, which is that the gains must be secured for the benefit of all while means are found to temper the results to the individual. Even the unions, always on the alert to take the popular stand of championing the little guy, have made it a policy to support technological progress, deeming it their specific duty to see that their members suffer no more than can be avoided. They realize that only in this way can the status of the union as a whole be raised.

In other words, unions reflect the attitude of society at large, recognizing that a certain amount of suffering is the price of progress and that we are always prepared to jettison the individual for the general benefit. You may ask what right has a majority to inflict hardship on a minority for the general good? Obviously the borderline between this and persecution by a group in power might be hard to define. A discussion of these matters is beyond our scope here, and, in any case, we have to admit that the validity of the principle is never really in doubt. The question is merely one of degree, a matter of when and to what extent we sacrifice the individual. In times of war we can and do make the individual wholly subservient to the state, even to the extent of singling him out for certain death. Economic pressures, while less dramatic, are no less inexorable than are military pressures and will be met similarly.

It is somewhat of a digression, but the whole thing is a study in morality. We are accustomed to think of morals as a matter of personal understanding of right and wrong. Within a certain framework this is true, but the more general truth is that morality is a matter of economics. What may be murder, treachery, lying, in peace time, become virtues in time of war. In certain societies infanticide, gericide, polygamy are not regarded as immoral. They would not be regarded as immoral in this country if the circumstances became sufficiently stringent.

Relevant to this is the peculiar psychological twist whereby we do things indirectly, or at one stage removed, that we should not have the heart or the stomach or the conscience to meet face-to-face. We are eager to use labor-saving devices, and feel no restraint in following the vagaries of fashion, knowing full well that we may contribute to loss of jobs or even to the destruction of an industry. The Industrial Engineer may feel squeamish about doing a man out of a job, but will be undisturbed, even triumphant, if added sales due to lower costs, have the effect of transferring the lay-off to a competitor's plant. More dramatically we have the example of the bomber crew who can face up to the certainty that their bombs will kill women and children yet would not, even under orders, be able to shoot women and children face-to-face. I merely mention this as being pertinent to all we have been discussing—the resentment against the immediate by-products of Industrial Engineering and the ready acquiescence in its longer range results.

These two attitudes—opposition at the near-point and enthusiastic acceptance at the far point—bracket the range of human aspects on the material level. May I summarize this by repeating that the apparent conflict between the Industrial Engineer and the man on the job is merely a trivial and transient manifestation of a broad principle in which the benefits infinitely outweigh the specific dislocations. It is well to remember two things; firstly the Industrial Engineer did not invent lay-offs, and, secondly, the general gains he achieves enable us to deal far more humanely with the dislocations than was once the case. Indeed what would now be looked on as dire straits would once have represented normal living conditions. Grinding poverty here would be affluence in the Orient. Individual predicaments are accentuated by comparison with the enhanced status of the rest. There is nothing absolute about it. It is all a matter of comparison.

It is fair to say that, whatever shortcomings he may have, the Industrial Engineer does personify a profound economic principle perhaps more pointedly than any other, but he is by no means the sole exponent. Anyone who tries to relieve drudgery, prolong life or improve our lot subscribes to the same principle.

Again reverting from the general to the specific, the Industrial Engineer brings certain rather special values in the field of human relations. These values are directly related to his application of the scientific approach to the problems of manufacturing and business. Into an atmosphere that is often charged with emotionalism and bias, he brings the concept of conclusion based on fact and uninfluenced by prejudice or interest. No less than the legal profession he supports the ideas of justice and truth. These two are human aspects of no mean significance, and I regret that we can do no more than mention them here. In the last analysis, they may be even more important than the economic aspects, in that they serve to change the atmosphere in which the problems of human inter-relationships are dealt with and thus permit more rapid progress towards the goal.

If I appear to have idealized the Industrial Engineer as a person, such was not my intention. If, on the other hand, I have idealized the function then no apologies are due, for that function is the focal point in our struggle for economic strength, indeed in our struggle for survival. If the engineer truly embodies the purpose, he performs a vital service, the human aspects of which are profound and limitless. ✪

A Century Of Progress

By JOSEPH W. TOWLE

A report on the Centennial of Engineering together with the contributions of SAM.

NAVY ROCKET engineers forecast that within five years rockets with multi-stage power plants will probe 1,000 miles into space. In a Chicago hotel, architectural engineers exhibited the model of a futuristic suburb, housing half a million citizens which could be built on an island in Lake Michigan, east of the "Loop" area. A speaker at the SAM Engineering Conference predicted that progress in human relations and social sciences will match technical and scientific achievements within 50 years. These and many other amazing predictions were presented in Chicago during the Centennial Of Engineering early in September, 1952.

More than 30,000 members of more than 50 professional engineering and scientific societies from all over the world attended this occasion and crowded Chicago hotels and auditoriums with meetings, seminars and symposiums. Officially this Centennial, which took place in New York City in September, 1952, commemorated the founding of the American Society of Civil Engineers. The meeting provided opportunity both to look backward over the past 100 years and to look into the future.

Herbert Hoover, ex-President of the United States and a director of the Centennial keynoted the Centennial with his statement, "The service of the engineer is to transform the discoveries of science into tools for the use of mankind."

OBJECTIVES & ACCOMPLISHMENTS

The specific aims and accomplishments of the Centennial were manifold. Under the leadership of Major Lenox Lohr, Director of the Chicago Museum of Science and Industry, the engineering principles which have made America great were demonstrated effectively in numerous exhibits and dramatic presentations. These demonstrations supplemented the technical papers and discussions of the professional society meetings. An effort was made to acquaint the public with the part played by the engineering profession and progressive management in the achievement of our high standard of living. It can now be said that the Centennial of Engineering achieved its stated objectives most successfully because it:

1. Dramatized for the public the principles which have produced the leading nation of the world and pointed the way to further development;
2. Acquainted the public with the part played in this development by the engineering profession and scientific management;
3. Attracted and interested young men in the study of engineering to fill the future's great need for technically trained men in industry; and
4. Held the world's greatest convocation of engineers.

These were the specific aims of the Centennial, but, in addition, the occasion provided a time and place for the engineering and professional groups to conduct some of their most successful technical meetings and conferences.

THE CONVOCATION

The formal part of the program designated as the "Centennial of Engineering Convocation" began on September 3 and ended on the 13th. About 50 engineering and professional societies participated in this and conducted concurrently their own meetings. The growth and achievements of the oldest engineering societies were traced at the opening symposium entitled, "The Role of the Organized Profession."

Dean Emeritus James K. Finch of the School of Engineering, Columbia University discussed the background and development of the American Society of Civil Engineers. The part played by the military engineers in the early establishment of the profession was presented by Colonel E. R. Heiberg of the Faculty of West Point.

The evolution and advancement of the engineering profession was further discussed as prominent educators and engineers outlined the historical backgrounds of some of the other branches of the profession. The stories of the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers were related. These organizations were among the first to separate from the Civil Engineers and to establish their own organizations.

The education and training of engineers was the subject of one symposium presided over by Dean Audrey A. Potter of the School of Engineering, Purdue University. The papers at this meeting attempted to evaluate present-day engineering education in terms of achievement, and to determine the requirements of the future. The needs for technical training of the trade-school type for employees in industry was discussed, and the relationship of this trade training to both technical institute education and to basic scientific and engineering education was analyzed. The possibilities of using lesser qualified technical employees for some work now performed by engineers, as well as the problem of expanding engineering education, were discussed. It was generally agreed that the future demand for engineers requires the present attention of educators.

Most of the symposiums were of a technical nature, designed to show the scientific and engineering accomplishments in the broad areas of goods and services. Such subjects as Food, Tools, Transportation, Mineral Industries, Structures and Construction, Chemical Industries, Communications and Energy, were treated in separate meetings. The contributions of engineers to Health and Human Engineering problems were discussed in one symposium and the Convocation closed with a session on Urbanization.

At this last meeting, the discussion emphasized contrast between the part played by engineers in the development of the typical American city and the nature of the present movement of people out from the cities into suburban areas. Some of the difficult problems with which city planning is concerned at present were outlined by Richard Baumhoff of *The St. Louis Post-Dispatch,* when he spoke on, "The Citizen's Viewpoint—Why People Move Out."

ADAM TO ATOM

Continuously throughout the period of the Convocation a spectacular musical show entitled "Adam to Atom" was staged at the Museum of Science and Industry. Playing twice each day and three times on Saturday and Sunday this musical pageant portrayed numerous scientific advances of mankind throughout history. The discovery of fire, the invention of the wheel, and subsequent scientific discoveries were dramatized. The importance of the earlier and later stages of the industrial revolution and current scientific achievements were highlighted for Centennial visitors.

INTERNATIONAL MANAGEMENT

One of the most important conferences was the Western Hemisphere Management Conference sponsored jointly by the National Management Council and the American Society of Mechanical Engineers. Members of SAM played an important part in this Conference. The ASME Calvin Rice Lecture was delivered by Colonel Lyndall F. Urwick of London, England. As he traced the development of scientific management, he emphasized the need for pushing forward social science research. He pointed out this area requires urgent attention because of the chaos and confusion which so frequently accompany the sudden changes caused by technological and scientific progress. He underlined the need to provide a management with the "know-how" to avoid the disruptions resulting from this progress. He recognized the problems underlying the necessity for redesigning our social and cultural life to a society built on power-driven machines. (This paper of Col. Urwick's will be printed in ADVANCED MANAGEMENT, December issue).

HIGHLIGHTS ON THE AUTHOR

Readers of ADVANCED MANAGEMENT are indebted to Dr. Joseph W. Towle, Associate Professor of Management, Northwestern University, for this review on the Centennial of Engineering. Dr. Towle, in addition to his teaching and consulting work for leading corporations, is active as Vice President of the Chicago SAM Chapter and Faculty Advisor to the Northwestern University Student Chapter.

With Mr. William R. Spriegel, he is co-author of "Retail Personnel Management," published by McGraw-Hill Book Co., Inc., New York, 1951.

He was a delegate to the IXth International Management Congress at Brussels in 1951; and he is a member of the American Management Association, the Industrial Relations Research Association, the Academy of Management, and the American Economic Association.

In another session of the Conference, Ralph Presgrave spoke on "Human Aspects of Industrial Engineering." (This paper is reproduced in this issue of ADVANCED MANAGEMENT.) Harold Smiddy of NMC and SAM, C. A. Peachey of the Canadian Management Council, and Ruy Miller De Paiva, representing the Brazilian Management Institute joined in a panel discussion on plans for the Xth International Management Congress in 1954 at Sao Paulo, Brazil.

SAM CONFERENCE

The Chicago Chapter of SAM chose the Centennial of Engineering time to stage their 1952 Industrial Engineering Conference. Under the chairmenship of Frank Grote of the American Can Company and Robert Arndt of Edward Valves, Inc., a two-day meeting was presented. Discussions were developed in three areas—Work Measurement, Methods Improvement and Human Relations. The Conference, presenting outstanding speakers from industry and education, was realistic, practical and forward-looking in its approach to such subjects as The Automatic Factory, Method-Time-Measurement, Communications, Micro-Motion Study and other aspects of industrial engineering.

TECHNICAL LEADERSHIP

In a statement about the Centennial Mr. Hoover maintained, "Our increased productivity has not come from government, except insofar as government contributes by protecting freedom of mind and action. . . . It is the engineer who, through the stimulus of free enterprise, gave America its vast productivity and its highest standard of living on the earth."

As never before, the part played by engineers in the leadership in industry and business has been pointed out during the Centennial. In thinking of these contributions to society made by engineers, scientists and scientific managers, the writer is reminded of a statement made in the 1930's by the late E. Richard Behrend, formerly president of the Hammermill Paper Company. In discussing the progress of mankind, Mr. Behrend pointed out that the actual leadership of workers and industries has not necessarily been in the hands of either managers or labor leaders. Mr. Behrend said:

"Men who blaze the trail of invention and show us better ways, men who through initiative lead their fellows to work, and through work lead them to wages, and through wages to higher standards of personal and family life, these are the men who rightfully should be known as labor leaders. . . . No one calls them labor leaders, yet they alone have led labor in its rise, and labor has followed them more than it has followed any other." ✪

Employee Dynamics and Engineering Technology*

By ROGER M. BELLOWS

Employee behavior is dynamic in nature. A psychological approach, utilizing democratic techniques, facilitates the achievement of high productivity.

ENGINEERING TECHNOLOGY has gone forward faster than human technology.

When engineers have new processes or work methods ready, their main problem is the human element. They ask "How can we introduce engineered changes so that employees will not only produce more but will also be happy and satisfied in their work?" An answer that is offered is to be found in the study of *employee dynamics.* This is the topic of this paper.

INTRODUCING WORK CHANGES

Managements that have been aware of the importance of employee satisfaction have tended toward psychological methods, as opposed to autocratic. Psychological management is a "we" rather than an "I" management. It takes into account the feelings and needs of the employee. Some employee needs arise from interrelationships of individuals and groups in business or industrial social systems. They include participation—"working with." They are complex, but are readily understood from our knowledge of industrial social psychology.

Motivation is the process of getting people to do things; to behave in a certain pattern. One way is to tell, or order, Jones to do it; another is to arrange the situation in such a way that he will do it because it is the natural thing to do, because he wants to do it. We may contrast the psychological way of supervision, or of management, with the autocratic.

Roger M. Bellows

Figure I presents schematically the difference between the psychological and autocratic modes of motivation. Four sections in the table show these differences as pertaining to making decisions, communicating decisions, control, and the role of the supervisor.

GROUP PARTICIPATION

The psychological procedure is characterized principally by the manner in which decisions as to work conditions and methods are made. In the psychological way, the group participates in making the decision whereas in the autocratic way there is a notable absence of participation by the group. As suggested by Figure I the psychological mode is especially characterized by: group concurrence; recognition by management of decision-making as a training problem; and cognizance of the problems and feelings of the group members who participate in the decision-making. Furthermore, the decision-making procedure in the psychological way of motivating groups of workers is concerned with the social climate that exists for groups involved.

Tannenbaum and Massarik[1] list the advantages which have been said to come from this type of decision-making participation. The list includes improved quality of managerial decisions, increased output, reduced turnover, and more peaceful management-labor relations. They suggest several conditions needed for effective participation: ability of the subordinate to participate; favorable attitude on the part of the subordinate towards participation; perception of the relevance of participation on the part of the subordinate; and ability of the subordinate to express himself.

Some managements have hit upon the group participation method in part through trial and error, or the survival of methods that work. Thus, natural selection of personnel procedures has probably played a part in the genesis and use of the psychological approach by some managements. Certain other managements have supported experimental research programs which have yielded evidence in favor of the psychological mode of motivation.

DEMOCRATIC MANAGEMENT

In the case of decision-making by group participation, Bavelas[2] has conducted and reported a study which is of interest. Bavelas' study was concerned with the production of female sewing machine operators. He worked with the group in establishing production goals. These sewing machine operators worked on an incentive pay plan.

Bavelas selected a high-producing

---

*This paper was presented at the 1952 Fall Industrial Engineering Conference of the Chicago SAM Chapter, September 11, 1952. Dr. Bellows' discussion is adapted from a chapter in his revised book entitled, "Psychology of Personnel in Business and Industry." to be reissued early in 1953. *Ed.*

group and discussed the matter of production with them, indicating to them that they could, if they wished, establish their own production goal. Up to the time of the initiation of this study the girls produced between 70 and 78 units per hour. After the group discussion an agreement was reached among the employees that they would like to establish 84 units per hour as the goal. In less than a week, these operators exceeded the goal they had set for themselves. Another group discussion then took place for the purpose of determining whether they would care to change the goal: they decided themselves that they would set a goal at 95 units. During the next week they fell short of the goal. At the time of a third meeting the operators decided to establish the production goal at 90 units of work per hour.

The follow-up made by Bavelas for a six-month period indicated that production averaged 88 units per hour over the six-month period. The conclusion from the results obtained by Bavelas was that the group participation and mutual decision contributed to a change in attitude. These conditions elicited a degree of motivation that resulted in increased production. The girls reported that the increased production was not accompanied by any increase in fatigue.

DYNAMIC GROUP MOTIVATION

Coch and French[3] sought answers to the question, "When management determines, by engineering developments, that a job can be done more efficiently by a new work method, what psychological conditions may facilitate acceptance of the new method by employees?" The usual way, the autocratic way, is to tell them to make the change; another and far better way was validated by Coch and French. They used dynamic group motivation as their solution.

Their experiment was conducted at the Harwood Manufacturing Company plant. The plant, in Virginia, had a working population of about 500 women and 100 men. The average age of the employees was 23 years. The average education was 8 years of grammar school.

The study was conducted with female employees, performing work in pajama folding, hand pressing, and pajama examining. They worked on an individual piece rate incentive system. A transfer bonus was to compensate an employee

Figure I

COMPARISON OF PSYCHOLOGICAL AND AUTOCRATIC MODES OF MANAGEMENT

Psychological	Autocratic
MAKING DECISIONS	
Group discussion of problems	Absence of participation by group
Decisions made by group concurrence	Degree of concurrence unknown and disregarded
Decision making recognized as a training problem	Decision making regarded as a prerogative of management
Feelings of group members analyzed and recognized	Feelings of group members unknown and disregarded
Social climate analyzed and recognized	Social climate disregarded
COMMUNICATING DECISIONS	
Participation and mutual understanding necessary	Orders by fiat; understanding not necessary
Workers discuss with supervisors and among themselves	Boss arbitrarily tells workers
CONTROL	
Psychological	Logical; legal
Staff organization emphasized	Line organization stressed
Social pressure	Supervisory pressure
Common goals	Diverse goals
Training and counseling	Discipline; enforcement
Non-directive	Directive
Problem solution	Shift from one problem to another
ROLE OF SUPERVISOR	
Employee oriented	Production and company oriented
Member of "in" group	Member of "out" group
Leader who has leader skills	Dictator
Group discussion moderator	Boss
Morale survey analyst	Authority
Expert	Commander
Counselor	Director

whose work method was changed. This bonus was to compensate an employee for loss during the period of relearning, or learning the new method.

Three experimental groups and a control group were used. They were roughly matched as to efficiency ratings before the change in work methods was made, which might tend to alter the amount of "we-feeling." Group size varied from 7 to 13 employees.

It was theorized that individuals resist change when frustrated by strong group pressures and forces. If this is true, then if the total group participated, or if representatives of a group participated in the decisions regarding the change in work methods, these group pressures, and the individual frustration induced by them, would disappear.

In arranging the changes in the method of work a control group was used. The employees in this group went through the usual factory routine for changes in work methods. Engineers of the production department planned the changed method and new piece rates were set. The control group was told, in a meeting, of the change and of the new piece rate.

EXPERIMENTAL GROUP 1

Before any changes took place, a group meeting was held with all the operators to be affected by the change in work methods. The need for the change was presented as dramatically as possible, showing two identical garments produced in the factory; one was produced in 1946 and had sold for twice as much as its fellow produced in 1947. The group was asked to identify the cheaper one and could not do it. This demonstration effectively shared with the group the entire problem of the necessity for cost reduction. A general agreement was reached that a savings could be effected by removing the "frills" and "fancy" work from the garment without affecting the folders' opportunity to achieve a high efficiency rating. Management then presented a plan to set the new job and piece rate:

A. Make a check study of the job as it was being done.
B. Eliminate all unnecessary work.
C. Train several operators in the new methods.
D. Set the piece rate by time studies on these specially trained operators.
E. Explain the new job and rate to all the operators.
F. Train all operators in the new method so they could reach a high rate of production within a short time.

The group approved this plan (although no formal group decision was reached), and chose the operators to be trained. A sub-meeting with the "special" operators was held immediately following the meeting with the entire group. They displayed a cooperative and interested attitude and immediately presented many good suggestions. This attitude carried over into working out of the details of the new job; when the new job piece rates were set, the "special" operators referred to the resultants as "our job," "our rate," etc. The new job and piece rates were presented at a second group meeting to all the operators involved. The "special" operators served to train the other operators on the new job.

EXPERIMENTAL GROUPS 2 AND 3

These two groups went through much the same kind of meetings to present the changes. The groups were smaller than experimental group 1, and a more intimate atmosphere was established. The need for a change was once again made dramatically clear; the same general plan was presented by management. However, since the groups were small, all operators were chosen as "special" operators; that is, all operators were to participate directly in the designing of the new jobs, and all operators would be studied by the time study man. It is interesting to note that in the meetings with these two groups, suggestions were immediately made in such quantity that the stenographer had great difficulty in recording them. The groups approved of the plans, but again no formal group decision was reached.[4]

RESULTS

There were differences in the work performance of all the groups. The control group did not recover to standard performance, whereas experimental groups 2 and 3 that had total participation, recovered rapidly. Experimental group 1, that had partial or representative participation, recovered more slowly than the two groups with total participation. The results show that, for the conditions of the experiment, recovery of standard performance was directly proportional to the amount of participation.

Another indication of degree of adjustment to change of the several groups was available—amount of turnover. Turnover may be viewed as a manifestation of lack of adjustment. Quitting the job may be the overt expression of frustration, or dissatisfaction engendered by group pressures. Seventeen per-cent of the control group quit during the first 40 days after the change. There were *no* quits in any of the three experimental groups during the first 40 days!

Here management recognized the need for effective communications through providing group meetings to stimulate the participation of employees in planning. It would seem that this dynamic, psychological mode of motivation could generalize to many business and industrial situations with much benefit to all concerned.

In general, managements with the psychological approach to the motivation of employees regard the making of decisions as a training problem, whereas those characterized by the autocratic approach look upon decision-making as the prerogative of management. In this latter approach, training supervisors and, indeed, rank and file employees in decision-making is of no consequence.

RESULTS WITH CLERICAL EMPLOYEES

It is evident that in the psychological procedure the feelings of the group members are analyzed and recognized, whereas in the autocratic approach the feelings of the group are completely disregarded. A portion of a study conducted by the staff of the Survey Research Center of the University of Michigan is in point.[5] This study was of considerable scope and provided control of a number of aspects of the work situation such as type of work, physical conditions, and work methods.

The study was conducted in the home office of the Prudential Insurance Company. A brief outline of the design utilized in the analysis will be of interest. Several independent measures were made. The first of these had to do with the productivity of individuals and sections. This was based on the amount of time required to do a given number of units of work. Secondly, the measure of employees' "perceptions and attitudes furnished by intensive interviewing of the employees" in high and low productivity groups was used. The high and low groups were matched roughly on the basis of several other variables. The third measure was the amount of supervisory perceptions, values, practices, and attitudes furnished by intensive interviews with all supervisory heads of the matched high and low groups.

The research program stressed analysis of the kind of social organization in which the work went forward. This included personnel practices and policies, such as formal rewards. The study was concerned with the interactions of the work group as well as the character of supervision. The work of the high and low productivity groups consisted of a number of clerical duties. These included servicing the field agencies, processing insurance policies, records, handling correspondence, filing, and so on. The authors state, "Since the base is the same for all sections doing the same kind of work, the sections, and likewise the divisions, may be compared with each other for any one month."

SUPERVISORY ATTITUDES

One of the aspects of the study that is pertinent to the present discussion is the analysis of attitudes of supervisors toward employees. Attitudes of two groups of supervisors toward their own jobs and toward their employees were considered. The supervisors were divided into two kinds: production-centered, and employee-centered. The production-centered supervisor tended to be concerned, as revealed by interview, with the production or technical aspects of the job; and he considered his employees primarily as people to get the work done. On the other hand supervisors who were more concerned with training people or taking an interest in employees were called employee-centered.

The production-centered supervisor tended to say in answer to the question on the most important part of his job, "Well, the most important part is to get the reports out. The biggest thing is to get the work out." In answer to the same question an employee-centered section head mentioned such things as keeping the section running smoothly, keeping the clerks happy, keeping production up, making impartial assignments of work, etc. Results of the study indicate that production-centered supervisors were found significantly more frequently in the low production sections than in the high production sections.

HIGHLIGHTS ON THE AUTHOR

Roger M. Bellows, educator, consultant and author, received his Ph.D. degree at Ohio State University in 1935. Since then, he has directed phases of personnel research programs at the U. S. Department of Labor, University of Maryland, National Research Council, and was Executive Officer of Personnel Research Section, A.G.O., during the last war. He is a consultant to the U. S. Air Force and Federal Advisory Council, U.S.E.S., and he helped organize Richardson, Bellows, Henry & Co., Inc., and is a director in that firm. He has written extensively—both articles and books.

Another distinction between supervisors could be made on the basis of the interview findings. Some of the section heads could be said to be primarily concerned with employee identification whereas others could be said to be concerned primarily with company identification. Those who were company-identified answered a certain question somewhat differently from those who were employee-identified. This question was, "Some people feel the job of supervisor is tough because they stand between the workers and management. Do you feel this is a problem?" A typical employee-identified supervisor said, "I have never found it that way, since I always try to put myself in their place. I can remember when I was a clerk and had someone over me, and I don't think employees feel that I am above them or anything like that." The more company-identified supervisor said, "I think it's tough because someone is always after me. I tell them I dislike things as much as they do, and if we'd all cooperate. . ."[6]

Significant differences were found between these two kinds of section heads. The section heads identified primarily with employees tended to be heads of high production sections; those primarily concerned with the company tended to be heads of low production sections.[7]

We would expect the supervisor who is production-centered in attitude to be primarily company-oriented—he would tend to disregard the feelings of the group that he is supervising, being postured more toward the feelings of top management. We would expect that there would be a greater social distance between worker and supervisor in sections where the supervisor was company or production-oriented rather than worker-oriented. We would expect, also, that the supervisor who is company-oriented would tend to communicate orders by fiat; he would not regard understanding on the part of employees as necessary, and he would "issue orders" rather than discuss matters and gain mutual understanding.

In light of the evidence presented, these differences in attitude of supervisors are exceedingly important as far as production of the people supervised is concerned.

The autocratic procedure tends to stress discipline. It seeks logical and legal grounds on which to discipline workers and bring them into line. The extreme example of line organization with autocratic control is the traditional military discipline. In this type of control, orders are given by the top command and go down the line, being theoretically carried out to the letter by the subordinate commands and the rank-and-file. The line of control is based upon a logical, as opposed to psychological, pattern. Autocratic control stresses supervisory pressure from the top, identification of the supervisor with the company, company and production orientation by the supervisor. Such control is similar to the control of a police department which enforces law, and which depends for its power of enforcement upon legal precedent.

The psychological procedure in control is quite different. Instead of logical and legal, the control is based upon psychological principles. Staff organization rather than line organization is emphasized. Social pressures within the group that does the work rather than pressure from the top is employed. Training and counseling are stressed; discipline and enforcement are deemphasized; non-directive counseling procedures are utilized. The supervisor is employee-oriented.

In considering the psychological mode of motivation and control, it is important to remember that all organized behavior in a factory or commercial office situation is goal-seeking behavior. Every individual in the group is concerned with the achievement of goals. Analysis of the situation as well as analysis of the duties of particular jobs shows what these goals are. Such analysis takes into account the interests, attitudes and feelings of the people who are to do the work. As a result of motivation based on such analyses, production becomes the common goal of management and the employee. In the autocratic form of control, the goals of management and worker are often diverse.

The procedure utilized in the psychological mode involves objective analysis. This procedure does not result in blaming the employee; it does not use a retaliatory nor a censoring approach. It attempts to analyze the problem that is involved. It endeavors to set up solutions to the problem; solutions very frequently are arrived at through group participation and group discussion. It becomes clear, then, that successful production requires more than a production engineer conferring with management. The production planning team includes, along with the production engineer and the motion and time study man, the industrial social psychologist, the human relations man. It is frequently more effective to take into account the human relations problems before production is planned or at least the two kinds of planning should go forward concurrently.

THE ROLE OF THE SUPERVISOR

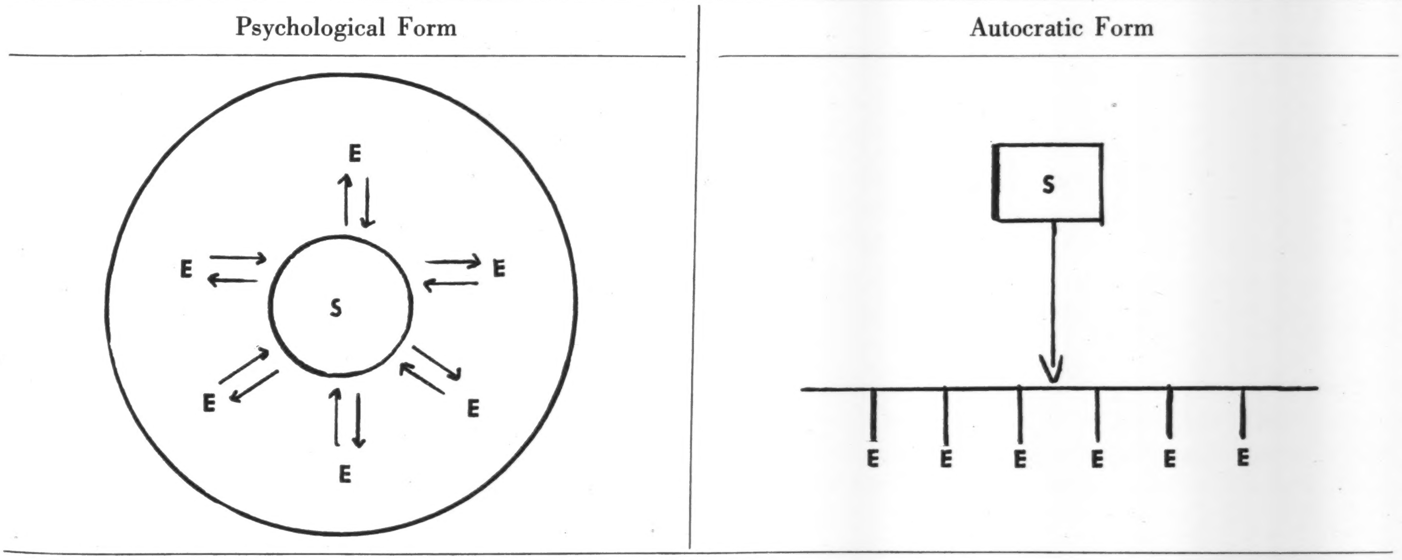
The supervisor assumes, first and foremost, under the psychological form of motivational procedure, membership in the "in" or "we" group. In the autocratic form, he takes pains to hold membership in the management or "out" group.

This distinction can be pictured in the following diagram, Figure 2. The left side of Figure 2 shows the democratic form in which supervisors are represented by the letter *S* and the employees by *E*'s. The diagram suggests an interchange of information, and participation of the employee with the supervisor. It suggests no difference in "level" of the supervisor. He gains prestige through psychological principles of leadership and his situation know-how. It does suggest that he is oriented toward the employees. Contrariwise, the right side of the diagram represents the traditional supervisor as oriented toward management and as directing his employees without recognition of the need for intercommunications. Communication flows downward at the employee. In the autocratic form, the supervisor attempts to maintain a social distance and to create a social climate such as to preclude mutual solution of problems. He wishes prestige based on his identification with top management. The supervisor has one goal, that of satisfaction of management, whereas employees have other goals, one of which is, not infrequently, actual opposition to management. Thus, dynamic intergroup forces or pressures are frequently more serious than the old production problems for which traditional managements sought to use autocratic solutions.

The psychological mode does not mean abandoning control of the situation, nor complete disregard of discipline. It is not a way of giving every individual his wishes, nor is it a clever way of manipulating people. It is not a way of divorcing the supervisor from management. Studies by the Research Center for Group Dynamics at Ann Arbor have shown, at least for a large organization, that, while the employee-oriented supervisor is more effective, other things equal, he must at the same time be influential with top management.[8] On the other hand, it is a way

Figure II

COMPARISON OF THE FLOW OF COMMUNICATION IN THE PSYCHOLOGICAL AND AUTOCRATIC FORMS OF MANAGEMENT


Psychological Form

Autocratic Form

of controlling through psychological principles, a way of accomplishing group discipline through social rather than company pressure. It is, further, a method of reconciling conflicting attitudes and seeking the solution of problems without creating new and sometimes insurmountable ones.[9]

The supervisor then becomes, as a member of the "in" group, a group discussion moderator, a morale survey analyst, a situation expert, and a nondirective counselor as contrasted to, as a member of the "out" group, a dictator, boss, an authoritative disciplinarian, or a commander.

This new role cannot be fostered overnight. It is necessary that the psychological supervisor develop certain skills which may be called leader skills. These skills will be based on the social psychology of employee motivation. The supervisor needs to learn through systematic and planned training procedures the techniques of the group discussion moderator. It is necessary for him to acquire an objective rather than a subjective attitude. It is assumed that he has knowledge of the situation sufficient to enable him to be thought of as an expert in his field and to that extent he would be prestigious to the employees. He will not be prestigious in the sense of "high brass" or fair-haired boy of top management. He will also need to achieve skill in non-directive counseling techniques. Principles for the development of the psychological leader-supervisor are set forth in some detail in Maier.[10] These principles may set the stage for a new and more promising viewpoint of management in the motivation and control of the behavior patterns of workers. They will provide the pattern for training of supervisors in the democratic use of psychological tools for controlling production. They will enable supervisors to set up the necessary psychological conditions for the satisfaction employees can derive from their jobs.

SUMMARY

Employees are not motivated today primarily by the need for the bare necessities of life; they have these. Their behavior is controlled by dynamic forces. These forces are psychological—they are present in the office and factory as well as in the community in which employees live. Study of employee turnover, by exit interview and other methods, helps describe the complex, dynamic aspect of employee satisfaction and dissatisfaction.

Some managements have analyzed and learned to use the methods that facilitate social forces that yield high production accompanied by employee satisfaction. These methods deal with psychological principles of group participation. A number of earmarks that differentiate them from autocratic methods have been discussed.

Evidence from several research studies on group dynamics shows that group participation can pay off in both employee satisfaction and high production. ✪

FOOTNOTES

[1] R. Tannenbaum and F. Massarik, *Participation by Subordinates in the Managerial Decision-Making Process*, No 14. Los Angeles, California Institute of Industrial Relations, University of California, 1950, p. 11.

[2] The study by Alex Bavelas was reported by Kurt Lewin, "Group Decision and Social Change," in *Readings in Social Psychology*, edited by T. M. Newcomb and E. L. Hartley, New York: Henry Holt & Co., 1947, pp. 330-44. The results of this study were later reported in Norman R. F. Maier, *Psychology in Industry*. Boston: Houghton Mifflin Co., 1946, p. 463; they were also discussed by Norman R. F. Maier, *Principles of Human Relations*. New York: John Wiley & Sons, Inc., 1952, p. 8 ff.

[3] Lester Coch and J. R. P. French, Jr., "Overcoming Resistance to Change," *Human Relations*, I (1948), 512-32.

[4] Ibid, pp. 521-22.

[5] Daniel Katz, Nathan Maccoby, and Nancy C. Morse, *Productivity, Supervision and Morale in an Office Situation. Part I.* Ann Arbor, Michigan: Survey Research Center, Institute for Social Research, University of Michigan, 1930, p. 84.

[6] Ibid, pp. 22-23.

[7] Ibid, p. 23.

[8] Donald C. Pelz, "Leadership Within a Hierarchical Organization," *Journal of Social Issues*, VII (1951), 49-55.

[9] Adapted from Norman R. F. Maier, *Principles of Human Relations*. New York: John Wiley & Sons, Inc., 1952, p. 30.

[10] Ibid, p. 30.

THE CHALLENGE TO AMERICAN BUSINESS

. . . "I am convinced that we in business will deceive ourselves if we think that a change in political parties in our national Government this November will, in itself, bring about a change in our ultimate destiny. We should, I believe, recognize that there must be a revival of fundamental beliefs in basic principles — a return to values that are deeper and broader than the number of television sets and bathtubs per capita as a measure of spiritual and material welfare. There is no gainsaying the fact that American business has done a wonderful job in this area — the area of "Better Goods for More People at Lower Cost." But this has not been enough to keep us from going down the road to statism at a rapidly accelerated pace and from relying on Government for the things which we can, in the long run, only provide for ourselves. There lies the challenge to American business.

If pure materialism is to be the sole motivating force, I believe that we in business will not do the job that must be done. If we are to survive as a thriving and prosperous people there must be more to the leadership of American business than the creation of wealth, the production and distribution of goods and services. If we, as a nation, are to continue our progress, American business must assume a leadership which, at least up to now, no one else has been able to provide and, like all true leadership, it must be based on principles which are higher and more basic to human welfare even than the production and distribution of wealth. That leadership must be based upon the same traits which we admire in individuals — strength, vigor, courage, honesty, tolerance, understanding, humility and high moral character. . . ."

— From an address by Ben Moreell, delivered at the General Meeting of American Iron and Steel Institute, on May 22, 1952.

SAM Annual Fall Conference

"YOUR KEYS TO BETTER MANAGEMENT" was the theme of the SAM Annual Fall Conference, held on October 30-31st, at the Hotel Statler, New York City. Both individual and company problems and opportunities in executive development were discussed by some of the top educators, industrialists, and government experts in this country.

Approximately 1600 persons attended the Conference, representing over half of this country geographically, and including persons from England, France, Germany, Puerto Rico and Canada. Over 48% of those attending were not SAM members.

The importance of realizing that executive development needs decent organization was emphasized by Mr. Peter F. Drucker, Professor of Management, New York University and Consulting Editor, Research Institute of America. His topic was "The Need For Executive Development—What It Takes To Be A Good Executive." Practical steps should be taken to add to the knowledge, competence and wisdom of present-day executives, and younger men should be trained to assume executive responsibilities to fulfill our needs for the future, according to Mr. Drucker.

Mr. Gilbert MacKay, a Senior Partner in the firm of Gilbert MacKay Associates, stated that up to 1932 the majority of the people voted for a sound currency; since then they have voted for full employment—in other words, creeping price inflation. Since 1939, according to Mr. MacKay, businessmen have had to learn a complete new set of business rules and procedures. He added that all wars, and/or defense booms have inflationary implications.

A RECOMMENDATION

In his speech, Mr. MacKay asserted that if any administration fails to allow annual wage increases, a more pro-labor government will probably come into power in due course. He made a recommendation that each company have a Vice President in charge of "Living Under Today's Conditions," since taxes, price controls, etc., have more to do with your company's future than any other factors.

"The International Scene — A Challenge to Management" was the topic covered by Mr. A. M. Lederer, President, National Management Council. He mentioned that a young generation of managers who are disillusioned with the failure of their leaders to recognize the futility of trying to build a sound economy on the ruins of a dead past are coming to their height of maturity in Europe, Latin America and Asia. American Management should address itself to them.

He went on to state that American Management can "enrich by cross-fertilization its reservoir of knowledge and experience by learning from the trials and tribulations of a groping Management Movement in other countries." In addition, he said that "American Management can combine with them through privately financed perpetual seminars, or other means, to find the true expression and aims of management."

"In a free world where the growth of population presses upon the imagination and resources of man, not only to survive but to obtain full spiritual and material growth, no other force of Society has the intellectual and spiritual capacity to answer that need as Management has," according to Mr. Lederer.

BETTER EXPRESSION NEEDED

"Wider education, better education, and longer education is not producing business leadership that expresses itself with increasing vigor and clarity," stated Mr. Ralph D. Paine, Jr., Managing Editor of FORTUNE.

By and large he has found that self-educated men have better command of the English language, since they read books to get ahead and to feel at ease with college men. Thus, they become better read than many college graduates who must read required books. Often, businessmen are asked to make speeches on subjects on which they are not expert, and the speeches are dull as a result. "If the executive will stick to what he knows, he has a much better chance of turning out good, forceful prose."

Mr. Paine said that his organization, Time, Inc., has enjoyed reasonable success over the last 30 years. He attributes this to the policy of not writing down to the readers, since even a high school freshman in America is estimated to know the meaning of from 10 to 40,000 words.

In addition, he expressed concern with the use of briefing, since it leads to a false tidiness and life is not tidy, orderly or logical. "Communications is a means to an end, not an end in itself."

HUMAN RELATIONS AWARD

The 1952 Human Relations Award was conferred upon Mr. Lawrence A. Appley, President of the American Management Association. The award, a scroll and key, is given annually for outstanding accomplishment in the human relations field.

Professor William R. Mullee, of New York University, received the Society's Gilbreth Medal for achievement in the field of motion study.

The Harrington Emerson Trophy was presented to the Washington Chapter of SAM, making the fourth time that they have received this recognition. The award is made to the Chapter that makes the greatest overall contribution in the advancement of management, as measured by the Award Plan.

CHAPTER AWARDS

Chapter Membership Key Awards were presented to the following three Chapters: the Asheville Chapter received the award for securing more new members during its first year of operation than any other new Chapter; the Allentown Chapter secured the greatest increase in its membership during the fiscal year 1951-1952; and the Cleveland Chapter secured the greatest numerical increase in its membership during the fiscal year 1951-1952. ✪

Building Executives For The Future

By LOUIS A. ALLEN

Basic Principles Underlying an Effective Program in Executive Development

DURING THE PAST few years, a great deal of emphasis has been placed on the problem of developing men so they will be equipped to take over business leadership. Extensive programs have been prepared, some of which are technically capable of developing potential executives to certain standards in specified fields. The only weakness to these procedures is a basic, and perhaps critical, consideration which we seem to have overlooked in our enthusiasm at getting the machinery going.

Before proceeding further with our developmental plans, perhaps it is timely to stop and consider what manner of executive we want to develop. Since it generally requires some 17 to 20 years to bring a man to maturity in management skills, our problem is to determine the kind of executive we will need in 1960 and 1970.

It may seem like looking into a crystal ball to try to anticipate now what our business will be like and what kind of leadership it will require a decade from now; but we have certain facts and we can surmise others. From this, we can fill out at least part of the picture.

First, we know that these managers of the future are going to have an opportunity to share in a greater volume of business than we have today. More than that, for the period which our current planning covers, there will be fewer people to conduct that business. The sudden and unexpected spurt in our population over the war years and up to the present means that we are going to have millions more young people — millions who consume and create more demand, but who do not produce. Consider also the increasing number of people who are living past 65 — more millions who are leaving the ranks of the producers, but who remain consumers. Another important factor is that so far into the future as we can see, there will be a steady drain of men to the Armed Services. This means that the two or more years many of these young men would ordinarily devote to getting their feet firmly placed in industry will be non-productive.

These facts point to the need for greatly increased production of all kinds of goods — but they also indicate that for many years we will have fewer people to produce these goods. This means fewer machinists, and operators, and technicians — but it also means fewer executives who are capable of planning and executing the moves that will give us a good seat at the industrial dinner table instead of a place in the kitchen where the leavings are served.

THE AUTOMATIC MACHINE

Another fact that is manifesting itself even today is the increased mechanization of industry. With the gradual development of fully automatic machinery and assembly lines run by electronics, we can be certain that the very organization under which we operate today will be sharply modified during the decade ahead. Successful operation of a fully mechanized factory will require much closer teamwork. Split-second decision will be demanded on the part of a highly specialized team of operators whose duty will be primarily in setting the control mechanisms to produce what is required and in preventive maintenance so the machinery will remain in top running order. The need for line operators, as we know them today, will have diminished because the automatic machine will take over most of that function itself.

The implications of this changeover are great. What kind of organization will be most effective in the push-button plant of the future? Since skilled help will be in short supply, what can be done to re-train the working force? How can teamwork be maintained among these technicians and specialists?

PROBLEMS OF THE FUTURE

These are important questions, but even more critical problems will face the manager of the future. During the next decade, as never before, he will find himself occupying a key position in the formation of new social patterns. For, like it or not, the executive of 1955 and 1960 will have to make a critical choice: either he will take his place on the driver's seat in the shaping of the kind of society in which he operates, or he will continue to shout loud warnings which make their greatest impression on those of his fellows who occupy the back seat with him.

For many years, this question of what *kind* of society his factory operated in was of little concern to the American businessman for the simple reason that American society and the American economic climate were the best possible for the health and vigorous expansion of American business. Nobody complains about the weather if it is mild and sunny; but bad weather has been with us for many years, and we are finally on the point of agreeing that industry has not only a right but also a duty to help shape the kind of business climate we want. We all realize that we are faced with the need of shutting the door on a horse who is already head and shoulders out of the barn. We find it difficult to accept the fact that this is so because we have not carried out our responsibility so far as the social environment we find ourselves in is concerned. The plain truth is, we are losing our most critical battle by default. Industry is losing its opportunity to exercise real influence in the community for lack of men who have evaluated the problem, who see its implications, and who have mastered the

Louis A. Allen

HIGHLIGHTS ON THE AUTHOR

Louis A. Allen is Manager of Personnel Administration and Training for Koppers Company, Inc. He is a graduate of Washington State College, where he also did graduate work in education and psychology, acted as assistant to the Dean of Men, and taught and counselled students. During World War II, he served as Major with the Army Air Forces, receiving the Legion of Merit for his work in developing personnel programs while personnel officer with Headquarters Sixth Air Force. For several years, he assisted in the development of company-wide training programs with the Aluminum Company of America. In his present position with Koppers Company, he has responsibility for company progress in both personnel administration and training. The author of a number of manuals on personnel and training subjects, he has also written widely for trade and professional publications.

techniques of doing something about it.

Each of us believes that industry is the heart and lifeblood of America. We are convinced that the country cannot prosper unless industry prospers and grows. We decry the politicians, the experimenters and the planned economists who are presently in the process of changing the very conditions under which we operate. This change is taking place in spite of our objections. It has been proceeding for 20 years and in some respects has gone so far as to be irreversible.

We sometimes delude ourselves with the thought that these changes are taking place because a small group of politicians has seized control and is making the country socialistic. A moment's reflection will show this is not so. This issue has been placed before the American people five times running. Each time it has received a majority approval. Each time American industry has been opposed to the major premises of the party in power; but each test has shown that industry does not have the understanding, support, or the sympathy of the people who voted. The significance of this becomes clear if we remember that a decisive proportion of these voters are the people who work in our plants and factories. These men and women and their families have supported a system we think is unsound and ruinous. In essence, our people have voted against us. They have done this because we are not able to talk to them so they will listen and understand and support the system that has made America great. Other men have caught their ears and sympathies. Perhaps that is one thing we should have in mind when developing the men who will manage our business in 1960 and 1970.

These, then, are some of the considerations upon which a long term program of management development must be based. Our economy and social structure are now in the process of change. Other economies have changed in the past, some because of such factors as over-population, loss of colonies, depletion of raw materials, or exhaustion of the soil. War, dictators and terrorism have also been dominant factors. Change in the American economic concept is somewhat novel in history because it is peaceful and it is due largely to the impact of ideas.

Although this change has been underway some 20 years, we still have the opportunity to determine what ideas will be in the ascendancy during the time of the generation of managers we are training today. As Justice Holmes once said, "... every idea is an incitement. It offers itself for belief, and, if believed, it is acted upon unless some other belief outweighs it." A primary objective in developing managers should be in this field of ideas. It is important that this future executive should have a sound concept of what is needed to maintain our form of government, and, what is more, that he should be able to communicate these ideas effectively to the people, with whom he works.

We have outlined some of the conditions that will confront the manager of tomorrow. Let us now consider briefly some things that should be done in every organization — both large and small — to insure that we select the men most capable of solving these difficult and trying problems. Since I know best the policies and methods we have used in my own Company, Koppers, I would like to talk in terms of what we have done.

APPRAISING POTENTIAL MANAGERS

After we have determined what kind of managers we will need, we have the problem of selecting the men with greatest potential and developing them along the lines we think desirable. Potential executives can be spotted early in their management careers in terms of certain traits and characteristics they exhibit. The best indication of future excellence lies in the kind of job a junior executive is doing today. If he shows initiative, ability and cooperation now, he will tend to show the same characteristics all the way through his management career. Where those qualities are not as strong as they should be, they can be strengthened through proper counselling and coaching.

The first problem, then, is to identify the men who seem outstanding in the traits we feel will be vital to the executive of the future. In our Koppers program, we think the following traits are significant:

A. *Judgment.* Can this man think a problem through in a logical, systematic fashion? Is he able to evaluate the facts and arrive at sound and practical conclusions? Does he consciously try to eliminate his personal feelings from his analysis of problems? Without this ability of analytical thinking, the executive of the future will be unable to properly evaluate his own situation as the basis for energetic, forceful action.

B. *Initiative.* Is this a man who can go ahead and do things without waiting for instructions? Can he act independently to put into effect those things his good judgment tells him are necessary? Men with this quality will be needed to spot the new trends as they develop and to keep ahead of them.

C. *Productivity.* Is this man a producer? Does he turn out a large volume of quality work? A perennial shortage of capable executives in the years ahead is going to make it mandatory that each bear his full share of the load.

D. *Ability to Contribute Productive Ideas.* Business success in the future will go more and more to those companies that see further and plan more productively than their competitors. This is going to place a premium on men who are not afraid to depart from the established pattern and strike out in new directions to establish markets and increase sales.

E. *Ability to Work With Other People.* Teamwork is vital to the industrial organization today; it will be even more so in the future. The outstanding future manager can be identified as the one who can win the respect and cooperation of his associates, who has the liking and respect of his subordinates and who works effectively with his superiors.

F. *Ability to Organize His Work.* With the increasing complexity of modern technology, the man who has the ability to systematize his work into a harmonious, smoothly operating whole will have a definite advantage.

G. *Ability to Develop His People.* Emphasis is being placed more and more on the *man* in management because it is through effective people that outstanding results are being accomplished. The effective manager must learn early that his effectiveness can be exercised only through other people, and that this can be acquired only if he develops his people on a systematic, continuing basis.

DETERMINE PROMOTABILITY

Each potential manager in the organization is appraised in terms of these characteristics. This appraisal is summarized in an overall rating, each man being classified as Outstanding, Above Average, Satisfactory, Fair or Poor. In addition to this *performance rating*, each potential executive is also given a *promotability rating*. This is derived from an evaluation of two additional characteristics:

A. *Ambition.* Does this man exhibit a strong desire to get ahead? Is he preparing himself for the next step up the ladder?

B. *Is He Capable of Continued Growth and Advancement?* No matter how strong his ambition, it will not be productive unless harnessed to the aptitudes and abilities a man needs to rise to the top in management. Here we appraise keen intelligence, open-mindedness, ability to learn, and personality.

Overall promotability is also indicated by a single rating of Outstanding, Above Average, Satisfactory, Fair or Poor. These two ratings are then transferred to a color-coded organization chart. Here the organization block for each incumbent is keyed in line with the stop and go color system of traffic lights. Combinations of green, yellow and red thus tell at a glance whether the man is Outstanding, Above Average, Satisfactory, Fair or Poor, as to performance and promotability. Also coded on these organization charts, is an indication as to the next job, or group of jobs, each incumbent can fill, together with the replacement who will move in when the incumbent moves out.

These color-coded organization charts give a concise, graphic picture of the status of the organization at any given time. They are extremely helpful in organization control and planning.

DETERMINING TRAINING NEEDS

Men who are selected as candidates for promotion usually lack certain education, experience or training which they must acquire if they are to become fully qualified. These deficiencies are outlined by the superior at the time the appraisal is made, and he also indicates what training the man should have to become fully prepared.

This training may include transfer to another position to give the man experience in a specific activity. It may involve membership on certain committees, or it may result in assignment as conference leader in the regular supervisory conference program. Also available are both technical and non-technical courses in such areas as Coke-Oven Design, Pressure Vessels, Public Speaking, Report Writing and Rapid Reading.

Perhaps the man needs further work in human relations, or his viewpoint is limited and a broadening of his horizons is important. Attendance at the Advanced Management Courses at Harvard or the University of Pittsburgh, or at seminar courses offered by the American Management Association, Princeton and other schools will help remedy the situation.

In large part, however, the most effective training is a process of trial and challenge which takes place on the job. When the superior deliberately sets up a difficult situation which is carefully calculated to draw upon every resource a man has, he is helping him to develop. When he counsels with the man so he can identify his mistakes and work out better approaches, he is building a man bigger than his job — the kind of man we need to solve the tremendous problems of the future.

TELL THE MAN WHERE HE STANDS

Since the whole purpose of this procedure is to help potential managers to improve, every person who is rated is also told about the results of his appraisals. This is done during a counselling interview, during which the superior spells out the man's strong and weak points, as indicated by the appraisal. The superior then encourages his subordinate to work out a program for self-improvement. This, of course, generally includes most, if not all, of the activities that have already been outlined on the appraisal form.

This interview forms the basis for a continuing program of coaching, during which the superior checks back periodically with the subordinate to further aid, encourage and advise him in his personal program for improvement.

Admittedly, this counselling and coaching procedure is difficult. It is hard to talk to a man about his weaknesses and to do it in such a way that he is motivated to try to improve himself. This is certainly one of the primary responsibilities of the executive of today and promises to be even more so in the future. By the manner in which the executive carries out this vital function, he sets up a gauge of his own effectiveness. According to the Koppers appraisal form, these are some of the things an outstanding executive does to help develop his people:

> Makes it a practice to analyze his people and work with them to help them improve. Systematically guides them in setting personal goals and assists in outlining improvement programs. Does an excellent job of counselling and coaching subordinates. Follows up throughout the year.

On the other hand, the following performance characterizes the poor manager:

> Tends to ignore his development responsibilities. Feels that activities devoted to improvement of people are a waste of time.

Thus far, we have talked about training potential managers to improve in the performance of specific jobs. We must also consider the need for broadening and educating these men with potential so they will make a real contribution to the community and the society in which they live. A few of the principles that seem to help in developing this kind of manager follow:

A. *Give to embryo executives a sense of why the business exists and what it is trying to do.* Commonly this is summed up in the cryptic statement, "to make a profit." Since this bold statement generally sounds selfish by itself, it is usually followed by a long and detailed explanation of how little that profit really is. All this may be true and necessary, but it simply is not going to sell free enterprise in competition with socialistic schemes that offer everybody free medical care, subsidized housing or a pension of $200.00 a month. A man who is being trained for a management position should know this. Even more important, he should know that his own Company has a real place and a real purpose in the community. He should know that his community profits from his Company as well as the reverse.

Simply knowing all this does little good. We in management are well aware of these facts. We spend a good deal of our time explaining them and talking about them. Unfortunately, we do most of this talking to ourselves. Executives in training usually are in a position where they directly supervise a group of employees. It is from such positions of leadership that they can most effectively get across to employees an understanding of what their business is, how it operates, and why it is a real asset to the community.

By this, I do not mean that the potential executive takes a seat before his people while a staff training man recites a glib speech. Nor do I mean that he gives time off for them to look at a motion picture or a canned presentation. I do mean that every future executive should know how to talk before a group, simply and naturally. He should know enough about conference leadership that he can get his people to discuss the issues involved and reason out the right and wrong of it for themselves.

B. *Business leaders are community leaders.* Up and coming executives should realize that they cannot carry out their job responsibilities fully unless they also assume their share of community responsibility. This does not mean that a man should become so burdened by community affairs that he cannot perform his own responsibilities properly. It does mean that he should be encouraged and even advised to identify himself with one outside activity which actually represents a contribution to the community. Here I would include not only the Community Chest and Red Cross Drives, but also community-sponsored projects for the eliminating of slums, provision of recreation centers, study of rezoning and population problems, and betterment of race relations.

A particularly fruitful field of endeavor for the potential executive is the school system of his community. Here the thinking of the next generation is being molded. The teachers who have this tremendous responsibility are frequently overworked and underpaid. Sympathetic representation on Parent-Teachers' Associations and local school boards can help correct these conditions.

In some communities where my own Company is represented, plant supervisors and executives have gone into the local schools to tell students about their Company, its products, and how it operates as a key function in the American economy. In consideration of the amount of socialistic propaganda that has crept into some of our text books, this is an effective antidote.

If the best of our people from business and industry do not undertake these tasks, we can be certain that the need will not continue unfilled. Such situations are prizes for bureaucrats; and bureaucrats, to perpetuate themselves, must continue to expand. It is not surprising that this expansion has already threatened our free institutions.

C. *Remember that Spanish sausage is still bologna.* The developing manager should become aware of the impact on employees of what goes on in the plant. An individual cannot experience the whole of the United States or even a very large part of it. His experience is necessarily centered about the things that he personally encounters every day on the job. These things are the American Economic System to him. No matter what he is told in the pamphlets he receives while on the job, he must interpret everything in terms of the things he himself experiences. So Free Enterprise thus becomes his chance to get ahead on his job. Democracy boils down to whether he can talk things over with his boss. Programs that aim at developing executives should also help the men in training to realize that no matter how diligently they elaborate upon the advantages of free enterprise, the people in the plant judge it almost completely on the basis of the treatment they receive in that sample of Free Enterprise in which the business manager sets up the conditions and operates the controls.

These, then, are some of the basic principles underlying a program that will be effective in developing the kind of executives we will require to run our businesses in 1960 and 1970. By their deeds or their omissions, these men will play a critical part in determining the kind of America we will have in the future. By proper selection and development of these future managers now, we can help assure ourselves that this country will continue to grow in both productivity and freedom. ✪

MEETINGS OF NATIONAL OFFICERS

November 1, 1952	Board of Directors
February 7, 1953	Executive Committee
April 18, 1953	Board of Directors
May 16, 1953	Executive Committee
June 27, 1953	Board of Directors

Time Study Research

By DR. IR. C. L. M. KERKHOVEN

An authority from abroad reviews the problem of allowances in time study and emphasizes the need for further scientific investigation.

PROFESSOR M. E. MUNDEL'S inspiring series of articles in this journal under this same title (June-October, 1950) should convince us that the problem of allowances in time study has not yet been fully solved in a scientific manner. His end sentence reads, "Certainly, here are three additional areas meriting extensive research if we are to progress toward the final goal of reasonably reliable measurements on which to base industrial work standards." The literature referred to, however, is purely American.

In other countries, as well as in my own Holland, work has steadily been performed on this problem. It is to be hoped that international cooperation in this field will lead, finally, to the solution which is so urgently needed. Hence, I am taking the liberty of setting forth some reactions to the articles cited, particularly in reference to the problem of allowances for machine time.[1]

If we want to have truly scientific allowances, we must be prepared first to measure fatigue, and its counterpart, rest, both in a scientific manner. Nobody questions the physiological relationship between pace and fatigue. Considerable information is known and published about these two factors. A great deal was done by the Nobel prize winner, Professor A. V. Hill of Great Britain, some 20 years ago. However, the fact remains that "fatigue" is still considered a human (or animal) *feeling* that cannot be measured and expressed in figures.[2] Also, *all* figures published by time study experts, giving allowances for fatigue and rest, etc., have very little scientific basis. The one and only way we time study men can and must follow, therefore, is to approximate using as scientific a basis as possible, and considering all facts and laws about fatigue or rest presently available. Actually, there is nothing infamous in this method of working; the physician uses this procedure in making his diagnosis.

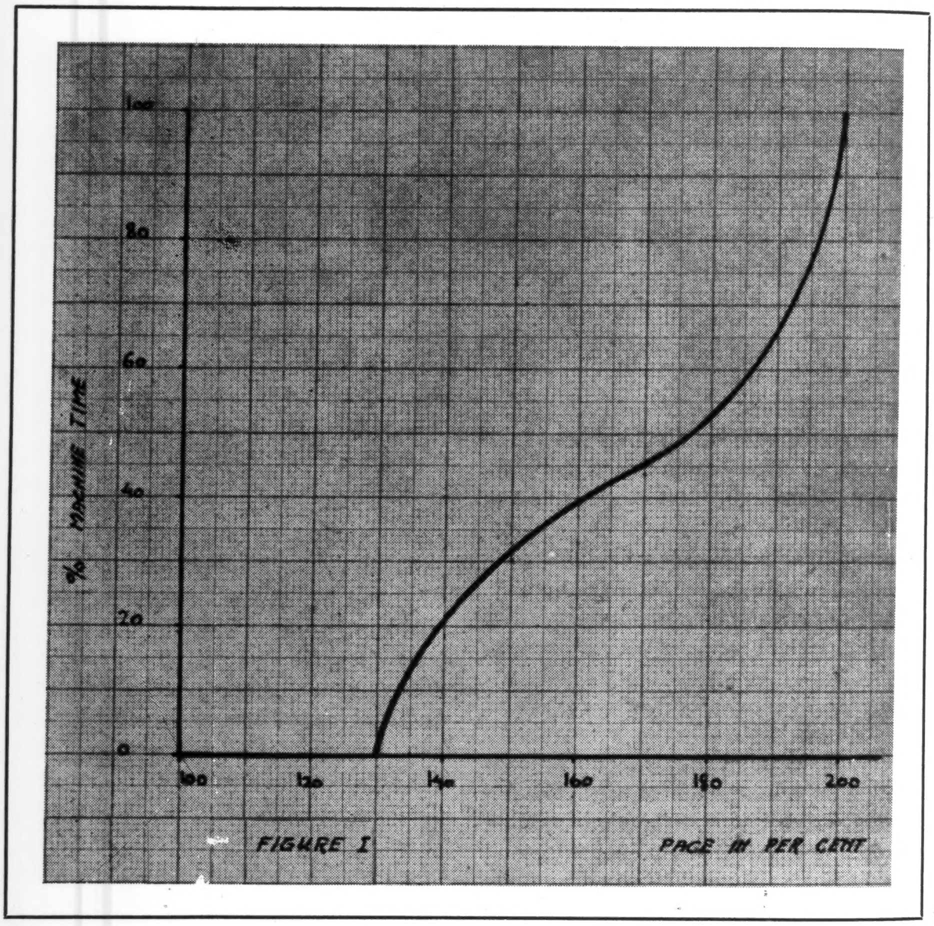


FIGURE I

Reading the American literature in this field during the last 20 years, however, convinces me that, strange as it may seem, your scientists do not follow this way. In spite of the fact that the most important law of fatigue (from a point of view of time study) was deduced and published in 1906 by an American.

Have you ever heard of the law of Kennelly? In his publication, "An approximate law of fatigue in the speeds of racing animals," in *Proc. Am. Ac. Arts & Sc.*, December, 1906, Vol. 42, No. 15, pp. 275-331, Professor Kennelly proves that there is a relation between speed or

HIGHLIGHTS ON THE AUTHOR

Dr. Ir. C. L. M. Kerkhoven was graduated from Delft University, Delft, Holland, and entered industry as a time study man. For his Doctor's degree thesis, he wrote a book entitled, "Het Tempo in de massa-productie." The English translation of the title is, "The Tempo of Work in Mass Production."

We are indebted to Dr. M. E. Mundel for help in editing this article. Dr. Mundel, active in SAM, is now on leave from Purdue University to serve as Director of the Management Engineering Program for the Ordnance Corps, Department of the Army, Rock Island Arsenal, Ill.

pace, V_T, and the time, T, during which this speed can be maintained. He stated that:

$$V_T = \frac{K}{T^{\frac{1}{8} \text{ to } \frac{1}{9}}}$$

in which K is constant.

In other words, for every job there exists a more or less exact relationship between pace and working time. This law, upon further investigation in Holland and elsewhere (for instance, in the "Fatigue Laboratory" of Harvard University; Max Planck Institute in Dortmund, etc.) since 1936, proved to be entirely true, applying to industrial jobs, with more than sufficient accuracy for time study purposes. The principal difficulties encountered when using this law for time study purposes was the establishing of correct values for the exponent, which we shall call the "fatigue exponent." This fatigue exponent was originally calculated by Professor Kennelly to be about ⅛ to ⅑. Investigations showed that the fatigue exponent varies from 0 to 0.2, depending principally (but not solely) on:

1. The length of the cycle.
2. The composition of the cycle.
3. The individual (sex, muscles, etc.).

It was also shown quite clearly that there was no relationship of importance, between the fatigue-exponent and the caloric value of the job[3].

It would appear quite certain to me that the allowances for machine operators, with machine controlled rest periods in their cycle, ought to be attacked also by means of the law of Kennelly. The situation primarily poses a problem of increased working speed by diminished daily working time caused by intermittent rest periods during machine time. In fact, it is some sort of *spurt effect*.

The graph, Figure A, from Professor Mundel's article, (here reprinted as Figure 1) is, as far as I know, the only graph in the world giving figures about the spurt effect of machine operators. Hence, it would appear definitely worthwhile to consider it earnestly and carefully.

However, when we analyse Figure I with the aid of Professor Kennelly's law, some peculiarities arise:

1. The relation seems to be clearly non-logarithmic. That is very peculiar because this sort of relationship would appear to me to be nearly always logarithmic.
2. The biggest spurt effect is 200 — 130 = 70%. According to Kennelly's law this spurt effect ought to be several 100 per cent for heavy muscular activities.

Let us first try to broaden our views with respect to these two points.

We can easily draw a graph on the same scale as Figure 1, to show us how Kennelly's law, applied without any corrections for machine-operators, would show. See Figure II. Here are given two curves (I and II) following Kennelly's law. Curve I might apply approximately for light, mass-production machine operations, as it was calculated with a fatigue exponent $n = -0.050$. This exponent was found to be a mean value for the fatigue-exponent of general mass-production, assembly jobs in the radio industry.

Curve II is calculated with a fatigue exponent value of —0.150, a value found for heavy muscular work with short cycles, comparable with rowing in sport.

To be able to plot Professor Mundel's curve in the same graph we must apply a slight correction to the original curve of Figure I. Under the influence of the spurt effect the length of the original cycle becomes shorter. Let us, for example, consider an original cycle with 50% hand-time H, and 50% machine-time M. Now, according to the graph of Figure I, at 50% M there is an increase of pace to 177%. This pace increase must be taken over the hand-time portion of the cycle only. Therefore that hand-time portion diminishes effectively towards $\frac{50 \times 1.3}{1.77} = 37$. The real length of the cycle becomes $50 + 37 = 87$ as M remains constant. The *real* percentage machine-time in this cycle is $\frac{50}{87} \times 100\% = 57\%$.

Doing these recalculations on several points of the curve, the value for the new corrected curve can be found in the following table:

Original % machine-time as taken from Figure I	Real percentage machine-time as put in Figure II
0	0
10	10
20	22
30	33
40	45
50	57
60	68
70	77
80	86
90	93
100	100

One look at Figure II enables us to see clearly that there is practically no similarity at all between the findings of Professor Mundel's and Kennelly's curves. This result can mean:

1. The law of Kennelly does not apply at all for these machine-operations;
2. The empirical curve of Professor Mundel is incorrect;
3. Both points 1 and 2 are correct assumptions and the whole problem must be investigated further.

I am apt personally to believe that the truth may be found somewhere in between. I cannot believe that Kennelly's law would not apply at all, though it must be admitted that the intermittent rest periods found in machine-operations differ considerably from continuous work at speed V_T, for a certain time T, followed by a continuous rest period, the conditions for which Kennelly's law applies. This may also be particularly true where both the rest and work periods are short, in themselves, but are continued for a work-day.

As Professor Mundel's curve does not indicate any difference in shape of the curve, for instance, work by men and women, or light and heavy work, it might be entirely worthwhile to reconsider this whole problem in the light of Kennelly's law. For, Kennelly's law shows clearly a different fatigue exponent for men and women, for instance:

	Men	*Women*
Running	—0.122	—0.185
Skating	—0.102	—0.150
Swimming	—0.071	—0.080

It is to be noted, of course, that Professor Mundel was not attempting to derive different standards for men or women.

And it is perhaps interesting to mention here, that the curves of F. W. Taylor's mathematical assistant, Carl Barth, who derived his famous curves from machine-operations, certainly gave different allowances for different percentages of machine-time in the cycle. If we carefully recalculate Barth's curves following Kennelly's law, we are able to see that Barth's curve for 10% handling time closely approximates Kennelly's line for a fatigue exponent of -0.015, and Barth's curve for 100% handling time (0% machine-time) follows the slope of a fatigue exponent -0.050.

So Barth truly differentiated already his allowance values for more or less fatiguing jobs. Nobody will disagree with the opinion that a job with only 10% hand-time is (generally taken) less tiring than a 100% hand-time job. Seen in this light, we are inclined to accept the fact that modern time study is not so modern and scientific as we would like it to be because Barth's curves are not applied anymore, as far as I know.

However, Barth's procedure to derive standard cycle times is not flawless. He certainly does not apply all necessary allowances to derive standard time from measured minimum-times, and, what's more, he mixes them together and applies them incorrectly. In my opinion, time study, in the future, will perhaps again measure minimum cycle times, and apply allowances to finally derive the standard cycle time (for a fair day's work) following Kennelly's law (corrected along scientific laboratory research) to eliminate speed-rating as far as possible. Now, we still lack a reliable fundamental upon which time study technique can be built.

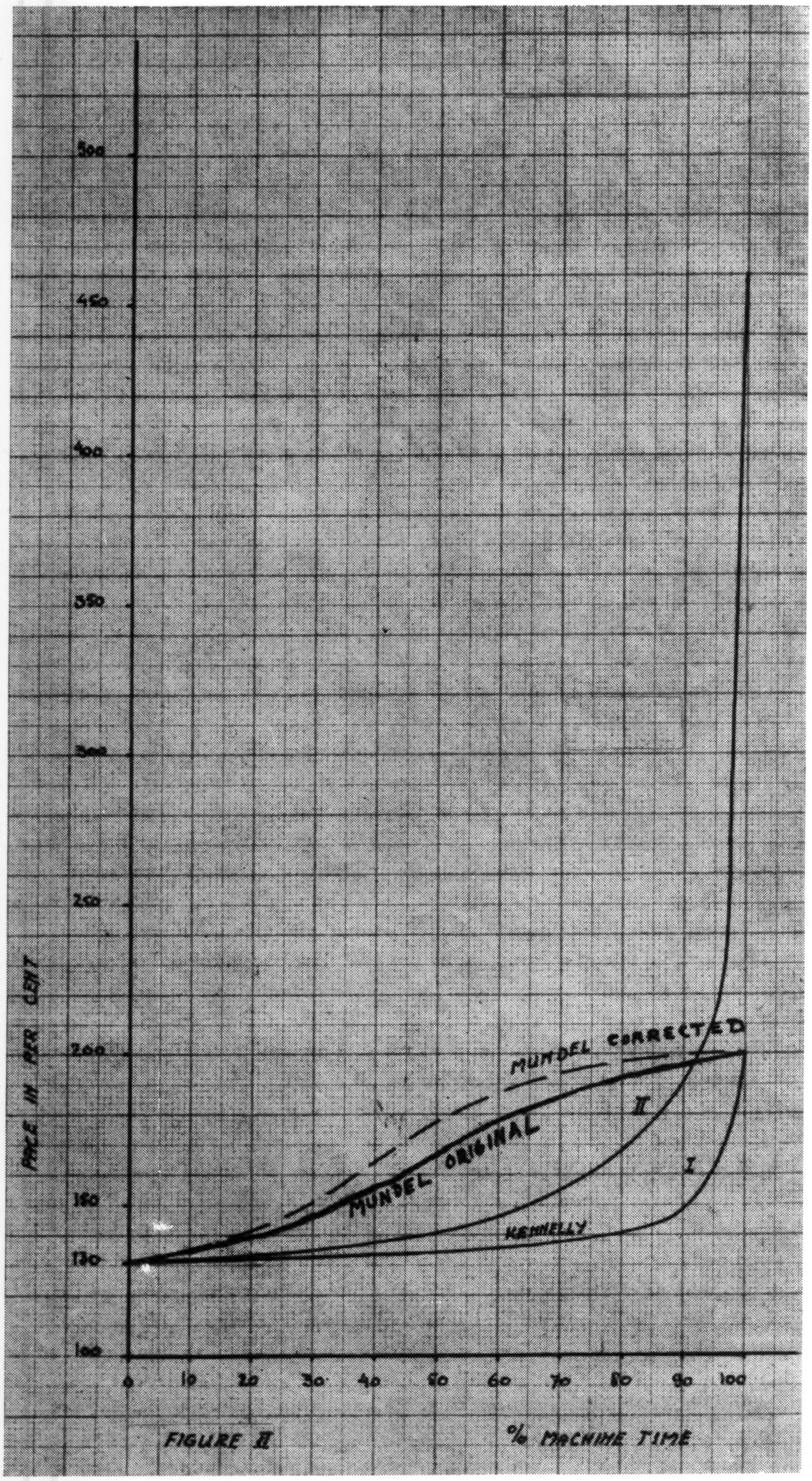


FIGURE II

Minimum time values, or performances made with maximal effort, possess *two distinct advantages* over *all* other time-values:

1. Maximal effort can again and again be repeated whilst showing only very small deviations in the

results of the timing. (This does not apply to any fraction of maximal effort. A living muscle always pulls the same maximal force physiologically; it is however impossible to let the muscle repeatedly exert a certain fraction of maximal force without heavy deviations.)

2. At maximal effort, the influence of fatigue is, in most cases, automatically eliminated. (Fatigue feelings don't show up before 10″ for very heavy work, and for light work even after a much longer lapse of time. Very heavy work is generally consisting of short cycles, so it is possible by spurting to exert maximal effort without the complicated interference of fatigue.)

On the other hand, maximal efforts have one important *disadvantage* in the business field: workers might object to this procedure because they might fear that the time study engineer might insist upon exerting this maximal effort during the full working day. As the disadvantage can be overcome by supplying adequate preliminary information and instruction, it may seem worthwhile to give this method a fair trial again.

Returning now to the difference in curvature of Professor Mundel's curve and the lines of Kennelly, there is another important point that may not be overlooked. The standard time values, derived by time studying those machine jobs from which Professor Mundel's curve resulted, were of course, established with the aid of some pace rating procedure. This pace rating may have strongly diminished the appearance of the spurt effect because the rater knew (though perhaps unwittingly) that the jobs with a small percentage of handtime could be performed continuously with a very high speed! In fact it is entirely possible that the curve of Professor Mundel has been smoothed over considerably by this effect of the pace rating.

This becomes still more evident, if we also consider the second peculiarity, i.e., the small maximum spurt effect of 70%. As a mean value for light, mass-production, assembly work and the like, this value may be fairly correct. However much higher values of spurt effect can easily be found. For example, in the world of sports:

Men running: Spurting speed approximates 36—37 km/h
Marathon speed approximates 17—37 km/h for 2½ hours
8 hours/day speed must be approximately 12 — 13 km/h
so a spurt effect of $\frac{36.5}{12.5} = 2.9$ or 190% results.

Men walking: Spurting speed must be according to Cumming (Gr. Brit.) approximately 55 yards in 9.4″ or 19.25 km/hour;
10 hour performance lies at 9.94 km/hour.
Spurting effect is therefore $\frac{19.25}{10} = 1.925$ or 92%.

Men bicycling: Spurt speed is 62 km/h
8 hour performance 30 km/h
Spurt effect $\frac{62}{30} = 2.06$ or 106%.

Men skating: Spurt speed approx. 50 km/h
9 hour performance approximately 23 km/h
Spurt effect 113%.

Women skating: Spurt speed 46 km/h
9 hour performance 18 km/h
Spurt effect 155%.

Of course, this is not continuous spurt and rest on an intermittent basis.

In industry even much higher values of this spurt effect can and have been found. Carl Barth's curves indicate spurt allowances of 90 to 100%. Mr. Curley describes a spurt effect of 300%[4]. The highest value I ever measured up to now, is 550%, handling bales of 100 pounds: Spurt speed is 550 bales per hour, 8½ hour daily performance is only 85 bales/hour.

Stamping paper sheets by hand also yields enormous spurt effects. The spurt speed is 6 stampings per second, while the 8-hour continuous performance may not exceed 6200 stampings per hour: This results in a spurt effect of about 250%.

In such cases in industry, it seems wise to consider all elements not belonging to the work cycle as rest periods. In the example of stamping paper sheets, for instance, such elements as fetching new sheets, changing stamps and ink and the like must be seen as definite relaxation periods for the muscles (and brain!) occupied in the stamping cycle. Without these rest periods it can be taken for granted that the daily production of the operator will drop by lack of rest. These auxiliary elements, which from a point of view of motion economy are simple losses, fulfill in such fatiguing jobs a very important role as rest periods which enable the worker to maintain a high continuous performance.

However, there is, of course, a serious question as to whether these spurt effects could be maintained, even intermittently, over a working day.

The relation between working time T and the performance V_T belonging to this time being not linear but logarithmic (Kennelly), it follows that by deliberately introducing auxiliary elements or rest periods in a fatiguing job such as loading pig iron, it must be possible scientifically to raise daily production of such jobs to a remarkable extent. Our great pioneer F. W. Taylor showed us how to do this. Have we, time study engineers of 1952, *forgotten* all this? In my opinion, we are not following the big main road nowadays, but are underway on a crossroad leading towards unscientific confusion, unrest and misunderstanding.

Concluding, I hope that Professor Mundel's series of articles may be the first step of retreat from the side road towards the big scientific main road. ✪

---

[1] ADVANCED MANAGEMENT, October, 1950, pages 23-24.

[2] Even the keto-steriodes have not fulfilled our hopes in this respect.

[3] References to these studies may be found either in my book (in Dutch with English summaries) "Het Tempo in de massa-productie," available in the bibliothecary of Mc-Graw Hill, N. Y., or in TIME STUDY AND COMMON SENSE, by A. Cohen (Macdonald & Evans, London) though the last writer is not quite exact in his quotations.

[4] BULLETIN OF THE TAYLOR SOCIETY, March, 1935, "The problem of allowances in time studies," page 123.

November Chapter Meetings

ASHEVILLE . . . With Mr. John B. Joynt as speaker, a two-day seminar was held on the 6th and 7th concerning "Management Control"; on the 13th, Dean T. H. Carroll discussed "Why This Emphasis on Human Relations"; and "Budget Practices" was discussed on the 25th by Mr. Hal Cory.

BOSTON . . . Mr. Claude A. Putnam, president of Markham Machine Co., spoke on "The Significance of the Election on the Business Outlook," at the University Club of Boston, on the 6th.

CENTRAL NEW YORK . . . Mr. Phil Carroll, time study engineer, held a Time Study and Work Measurement Clinic, at the Hotel Syracuse, on the 20th and 21st.

CENTRAL PA. . . . The members heard Col. W. F. Rockwell, chairman of the board of Rockwell Manufacturing Co., on the subject of "Industry and the Community," on the 20th, at Dubois.

CHARLOTTE . . . Luther Hodges, Lt. Governor Elect of North Carolina was the speaker at The Barringer Hotel, at 6:30 P.M., on the 18th. His topic was "Impact of Government on Business."

CINCINNATI . . . "Management in Action" was the subject of Dr. Douglas McGregor, president of Antioch College. The meeting was held at the Hotel Alms, on the 6th.

HUDSON VALLEY . . . The members heard Mr. Gordon Foster, assistant comptroller of the Camera Works of Eastman Kodak Co., on the topic of "Budgeting for Management Purposes," on the 11th. This was a joint meeting with N.A.C.A.; and Mr. A. E. Nyquist of General Aniline Works was chairman, at the Hendrik Hudson Hotel, Troy, N. Y.

MILWAUKEE . . . Dr. J. E. Janney, psychological consultant, spoke on the topic of "The Engineering Approach to Executive Development." This was held on the 13th, at the E.S.M. Building.

PHILADELPHIA . . . On the 5th, at the Poor Richard Club, Mr. Daniel Rochford, employee relations, Standard Oil of New Jersey, addressed the members on "Communications." The Plant Maintenance Series held a meeting on the 6th, covering "Skilled Trade Training," with Mr. E. Seltzer as chairman.

PITTSBURGH . . . The Chapter held an all-day Industrial Engineering Conference on the 18th. The speaker for the evening meeting, held in Webester Hall, was Mr. Harold B. Maynard, president of Methods Engineering Council. His talk dealt with "Scientific Management Abroad."

READING . . . A lecture course in Motion-Time Standards was held every Tuesday evening from 7:30 to 9:30 P.M., at the Reading Business Institute with Frank A. Beebe, Jr. as lecturer.

TRENTON . . . On the 18th, Dr. E. G. Planty, executive counselor of Johnson & Johnson, discussed "The Present Day Need For Executive Training."

WASHINGTON . . . On the 3rd, "Government Business Relations in International Trade," under the chairmanship of Mr. Alden W. Boyd, MSA, and Mr. Oscar Cox, Attorney, took place in the Federal Personnel Council.

On the 6th, "Employee Contributions to Management Improvement" with Mr. John E. Moore, OSD, as chairman, was held at the Federal Personnel Council.

On the 10th, "Government Business Relations" under the chairmenship of Mr. G. Lyle Belsley, NPA, and Mr. Donald G. Shook, NPA, was heard in the Federal Personnel Council, at 7:30 P.M. Also, on the 10th, in the Departmental Auditorium, Conference Room A, at 7:30 P.M., "Scientific Management In the Home," under the chairmanship of Mr. Robert K. Friedman, Navy, and Mrs. Catherine R. Morhard, was discussed.

On the 17th, "Financial Management," was the topic discussed in the Departmental Auditorium, Conference Room B, with Mr. Karney A. Brasfield, GAO, as chairman.

On the 18th, the topic of "Organization and Management Methods in Business and Government," under the chairmanship of Mr. John J. Corson, of McKinsey & Co., and Mr. Ross S. Shearer, ESA, was held in the Federal Personnel Council.

On the 24th, "Legal Aspects of Management" under chairmenship of Mr. John G. Alexander, NPA, and Mr. Peter R. Nehemkis, Attorney, took place in the Departmental Auditorium, Conference Room B.

WILMINGTON . . . Mr. James J. Bambrick, labor relations specialist, National Industrial Conference Board, discussed "Current Labor-Management Thinking on Technological Improvement," at the Hob Tea Room, Delaware Trust Building, on the 12th. ✪

DECEMBER CHAPTER ACTIVITIES*

CHAPTER	DECEMBER	PLACE	SPEAKER	TITLE	SUBJECT
Allentown	2	Olin Industries, Pisgah Forest	N. H. Collisson	Vice President, Acousta Paper Corp.	Plant Visit—Olin Industries
	9	White Farm Inn	H. H. Carey	Consultant in Personnel Administration	What Does An Employee Have a Right to Expect from His Employer
Asheville	11	Battery Park Hotel	William Umstead	Candidate for Governor	The Industrial Future of North Carolina
Baltimore			David C. Sachs	Chief Counsel, Fifth Region, N.L.R.B.	Government's Position in Labor-Management Relations
Birmingham	5	Molton Hotel	Prof. Henry B. Moore	University of Alabama	Your Customer Is Your Business
Boston	11	University Club, Boston	Eugene Zuckert	Member of Atomic Energy Commission	Managing Government Agencies Is No Cinch Either
Bridgeport	9	Hotel Barnum	G. Gilson Terriberry	G. Gilson Terriberry Co.	Problems Involved In Developing A Pension Program
Central Pa.	18	Bellefonte	Howard Jones	Manager, Organization Planning & Controls, Standard Pressed Steel	Approach To Human Relations
Charlotte	9	Barringer Hotel	Lewis W. Lerda	Ass't Manager, Training Division, Esso Standard Oil Co.	Training of Supervisors
Chicago	9		J. J. Zuicker	Chicago House Ind. Engineer, Montgomery Ward & Co.	What Application Can Be Made of Time Study and Methods Techniques to Office Work
Cincinnati	4	Hotel Alms	Dr. R. Likert	Director, Institute for Social Research, University of Michigan	The Supervisor and His Subordinates
Detroit	2		Dr. Robert F. Pearse	Director of Executive Appraisal & Development, Harold F. Howard Company	Making Executives Out of Industrial Engineers
Greensboro	9	Starmount Country Club	Robert Grigsby	Training & Consulting Division, National Foremen's Institute	The Application of Mental Dynamics to Increase Productivity
Greenville	10	Hotel Greenville	Sidney Q. Janus	Personnel, Inc.	The Philosophy of Management
Hudson Valley	2	Hendrick Hudson Hotel, Troy	N. M. Perris	Senior Partner, Stevenson, Jordon & Harrison, Inc.	Incentives for Foremen and Supervisors
Lancaster	16	Research and Development Center, Armstrong Cork Co., Lincoln H'way W.	F. B. Menger	Associate Director, Research, Armstrong Cork Co.	Research and Production (A panel discussion followed by tour through center)
Milwaukee	11	E.S.M. Building, 3112 West Highland Blvd.			Past Presidents' Night
Montreal	10	Ritz Carlton Hotel	R. B. MacPherson	Economist, Canadian Industries Ltd.	Forecasting Canadian Business Conditions
New Brunswick	11	Rutgers Commons	Dr. Lillian M. Gilbreth	Consultant	The Human Side of Engineering
New Haven	1	New Haven Chamber of Commerce			Board of Directors Meeting
New York	2	Midston House	John Feltman	Chief Industrial Engineer, Conmar Products, Inc.	Work Factor Predetermined Time Values (last session of 10-week course)
	18	Statler Hotel			Reading Improvement for Executives
No. New Jersey	4	Essex House, Newark, N. J.	Russell Hurst	Vice President, Bigelow-Sanford Carpet Co., Inc.	Production Control Techniques
Philadelphia	2	The Poor Richard Club	Robert C. Landon	Manager of Industrial Relations, Rohm & Haas Company	Supervisory and Executive Development
Reading	16	Reading Business Institute	Frank A. Beebe, Jr.		Motion-Time Standards (last in series of lectures)
Trenton	2				Handling Human Relations Problems
	9	Hotel Hildebrecht	Bruce Payne	President, Bruce Payne & Associates	Doing the Job With Workable Incentives
Washington	1	Federal Personnel Council	Alden W. Boyd Oscar Cox	MSA Attorney	Government Business Relations in International Trade (a round table discussion)
	2	Archives—Room 105	Gustave A. Moe D. C. Downs	GSA Stern Co.	Management of Equipment and Goods
	4	Federal Personnel Council	John E. Moore	OSD	Employee Contributions to Management Improvement
	8	Federal Personnel Council	G. Lyle Belsley Donald G. Shook	NPA NPA	Government Business Relations
	11	Departmental Auditorium, Conference Room A	Robert K. Friedman Mrs. C. R. Morhard	Navy	Scientific Management in the Home
	16	Federal Personnel Council	John J. Corson	McKinsey & Co.	Organization and Management Methods
Wilmington	2	Hob Tea Room, Delaware Trust Building	T. G. Newton	Director of Training, Armstrong Cork Co.	Developing an Effective Organization

*This is a summary of the Chapter activities reported. Programs of the other 27 will be listed upon receipt.

NMC INTERNATIONAL NEWS

EDITOR'S NOTE: *NMC International News, written by the staff of the National Management Council, will be a regular feature of ADVANCED MANAGEMENT.*

The Society for the Advancement of Management is a charter member of NMC, a non-profit, non-political organization founded in 1933 by the leading societies and associations interested in the promotion of the science and art of management. NMC represents the United States in the International Committee for Scientific Management, (CIOS), a coordinating, cooperative society, composed of like associations in 20 other countries.

The following paragraphs are quoted from the introduction to the Organization Manual of CIOS. This entire introduction was so thought-provoking that it was extremely difficult to select the outstanding paragraphs for this NMC page. The complete Introduction has been mimeographed and is available from the National Management Council, 501 Fifth Avenue, New York City. Excerpts from this Introduction follow:

"Two waves of 'American Know-How' have floated over the Atlantic Ocean to Europe: one soon after World War I was labeled 'Scientific Management'; the second after World War II, 'Productivity.'

"As far as 'Scientific Management' is concerned, of which F. W. Taylor is said to be the father and Frank Gilbreth the god-father, its transfer to Europe started as early as 1924 with the first International Management Congress in Prague. This Congress task developed soon into a broad and permanent international job, embracing Europe as a whole.

"This transition period which witnessed the constant influx of American Scientific Management to the European continent, this concept, as soon as it had been imported onto European soil and came under the influence of European thinkers and promoters, like Fayol, Le Chatelier, de Freminville, Adamiecki, Urwick and others, developed in a homespun European way, underwent an adaptation to European circumstances, habits and mentalities, and was even called by partly translated, partly invented European names and designations.

"The Second World War completely interrupted such promising developments in the European countries as well as on the international level—but not in the United States. On the contrary: in the home country of Scientific Management its principles and methods were widely and most successfully used for the preparation and conduct of war. Their practical application contributed not only considerably to the victory of the allied powers, but enriched the 'American Know-How' of Scientific Management with a great deal of practical experiences and even with new tested methods, such as Dooley's Training Within Industry ('TWI'), Maynard-Stegemerten's Methods-Time-Measurement ('MTM'), etc. The situation existing already after World War I, namely a considerable gap between the high level of Management in the United States and its low level in the war destroyed paralyzed European countries, was, thus, repeated after World War II.

"Again it fell to the Americans to pump into the war-destroyed European Economies not only money, goods and machines, but also the Know-How indispensable for their efficient utilization.

"But whereas in the 20's the fertilization of European production by American methods was exclusively due to private initiative, the analogous enterprise of the 50's is to a large degree the concern of the governments:

"Further, in contrast to the inter-war period, when the number of Europeans who could afford private study trips to the USA was necessarily limited, the post-war period is characterized by numerous officially organized study trips bringing over hundreds of study groups with thousands of participants under the auspices of ECA, NMC, and OEEC, to see the American Know-How in operation on the spot.

"All this is done under the resounding slogan of 'Productivity' by setting up 'Productivity Centers' as well as other official or semi-official agencies for the promotion of productivity in each one of the European Marshall-Plan countries, and on the international level, by a Consultative Group on Productivity of the OEEC in Paris.

"Since the triumphal march of 'Planning' during the early 30's of our country, no other American-born slogan has had such a world wide telling effect than 'Productivity.'

"There must be something new which has given life and such vital impetus to the young productivity movement. It cannot possibly be that the fertilizing manna of the Marshall aid and the blessing of Governments alone have produced within such a short time so large and decisive an economic-social reform action. There must be some new philosophy, some new goal, which inspires a new mentality and fresh idealism.

"This seems in fact to be the case; and here again the novelty has come over to Europe in the luggage of the

American 'Know-How.' It consists of nothing less than the modern American social-economic philosophy of mass-production with reduced costs and prices, increased real wages and purchasing power, reduced working hours and higher standard of living. Such a philosophy is logically connected with more democratic Management Labor Relations; it creates a spirit and method of cooperation within a creative industrial climate free of 'class war.'

"As far as this new gospel includes and stresses the 'Human Factor,' it is completely in line with an old claim of true scientific management voiced by Taylor himself.

"It is the more gratifying to see nowadays a new mentality making headway all over Europe, which cannot be better summarized than in the comment a French trade unionist made on his impressions as a member of one of the many Productivity teams sent with ECA help to the USA recently: 'American Managers speak like European Trade Unionists, American workmen like European 'patrons.'

"Let us come to the conclusion: truly Scientific Management is now, as before, the most effective means for raising Productivity; inversely Increase of Productivity is again now as before, an essential aim of Rationalization and Scientific Management, in fact, the one aim, particularly the raising of living standards, cannot possibly be achieved.

"The first a goal of the second, the second means of obtaining the first — in this sense both, Productivity and Organization, should work together, shoulder to shoulder, should walk together on the common path towards the common goal; prosperity.

"Similarly and consequently both the young Productivity Movement with all its National Productivity Centers and the old Management Movement with all the National Committees of CIOS should put their structural and working relations under the same motto of collaboration.

"Collaboration all over the field, on the national level and on the international level. Collaboration, the closer the better, the more intensive, the better, the more productive, the better." ✪

Building Our Membership

By DON F. COPELL

Vice President of Membership

WHILE GOING AROUND the country, I am often approached by SAM members wanting to know how to approach prospective members and what to tell them to make them want to join.

First, we should all adhere to the old saying that the man who is educated today and *stops* learning is uneducated the day after. Everything is moving and changing so fast these days that we, as management men, must keep up-to-date. What better place is there to exchange ideas and to be inculcated with new ideas than at the many SAM meetings going on practically every day throughout the country. Well over 50 chapters meet monthly—some even weekly—to discuss and debate management and engineering problems.

At our two Annual Conferences, the very latest techniques are proposed, discussed, and tried. Authors, experts, and top level practitioners from every corner of the globe are, often for the first time, revealing what they have been doing behind closed doors for a long time. I have personally picked up ideas which have saved my company thousands of dollars, all for the price of $20.00 a year for membership, and another few dollars for registration.

Let's look at the purposes of SAM. The purposes of this Society are, through research, discussion, publication and other appropriate means: (1) to forward the elimination of waste and the development of efficiency through the study and application of scientific principles and methods of management; (2) to bring about a better understanding of the mutual interests of government, management, investors, labor and the public in improved management; (3) to provide means whereby executives, engineers, teachers, public officials and others concerned, who apply scientific methods to management problems, may promote this common interest; (4) to inspire in employee and manager a constant adherence to the highest ethical conception of individual and collective social responsibility.

Some Chapters conduct training courses, seminars, plant tours, and round table discussions, besides holding their regular meetings.

Most of these courses are highly specialized, dealing with subjects rarely considered by colleges and universities.

Plant tours are through some of the most modern plants in the country, where admittance is difficult because of the new techniques used therein.

SAM publishes one of the finest magazines exclusively devoted to Scientific Management. Every article is authentic, and rarely available anywhere else. Great men write about their pet projects or techniques exclusively for ADVANCED MANAGEMENT, which is sent free to members. Long before the general public in the management field hears of something new in scientific management, ADVANCED MANAGEMENT has published it. Where else can any man deriving his livelihood from management of an enterprise get so much for so little?

Our new booklet entitled, "SAM — What It Is and What It Does" is now available from SAM Headquarters. It is the finest tool you can use to get new members. Get some booklets and ask for our new application blanks also. ✪